



## PHD

### **The information preferences of those with food allergies and food intolerances: Learning from social media (Alternative Format Thesis)**

Hamshaw, Richard J. T.

*Award date:*  
2018

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**The information preferences of those with food allergies and food  
intolerances: Learning from social media**

**Richard James Thomas Hamshaw**

**A thesis submitted for the degree of Doctor of Philosophy**

**University of Bath**

**Department of Psychology**

**August 2018**

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## **Abstract**

Social media platforms have become key tools for gaining information, but there is currently a limited evidence base as how they are used to support information exchange around health issues. Extending the work that has focused on online support groups, this thesis considered social media use in relation to an increasingly common health concern: food hypersensitivity. Four empirical studies using qualitative and quantitative methods were conducted to explore two broad objectives: 1) how and why social media users utilise platforms for managing their food hypersensitivity, and 2) how these users perceive social media information and authors of this content.

Findings demonstrated that social media was a valuable source of information and social support for those managing food hypersensitivities, and that platforms served as useful venues for discussion. An analysis of Twitter data demonstrated that organisations and individuals interact to support a cause and mobilise users on an issue. Social media support was likely to be sought post diagnosis, to support information requirements around managing food hypersensitivity. A network of users were seen to moderate information, discrediting inaccurate sources and calling for additional expertise. The Twitter infrastructure, for example, commenting, retweeting, user-tagging, and hashtag usage, facilitated moderation and mobilisation via these networks. Links within tweets increased ratings of credibility and persuasiveness, and markers of food hypersensitive expertise on social media were identified, such as evidenced posts, and connections with stakeholders and other experts. Medical professionals were taken-for-granted experts on social media, but other users could be considered expert through recognised food hypersensitive lived-experience.

Both medical professionals and organisations must engage with social media, support content moderation, and signpost patients to appropriate sources. By engaging with social media platforms, stakeholders may reduce risks associated with proliferation of erroneous information, and instead support those seeking to manage food hypersensitivity.

*I dedicate this work to my father Paul Derek Hamshaw,  
the proudest, most caring, most accepting father who ever lived.  
And still, the most intelligent man I have ever known.*

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I would first like to thank those who have helped me progress with this research.

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<sup>2</sup> **Please note.** Due to study chapters being presented as published, in review, or draft manuscripts, figure numbers are not organised sequentially as each paper must include its own sequential figure formatting.

## **List of Abbreviations**

BPS: British Psychological Society

EU: European Union

FH: food hypersensitive

FIR: Food Information Regulations

FSA: Food Standards Agency

UGT: Uses and gratifications theory

URL: Uniform Resource Locator

---

## CHAPTER 1 - INTRODUCTION

---

### Overview

This chapter will provide an overall picture of this research thesis. Key concepts are introduced and the research problem identified. A clear statement of the overall research objectives and the theoretical orientation are presented. A concise overview of the methodological approach adopted is then outlined, followed by a brief discussion of empirical contributions. Chapter 1 closes by providing the full thesis structure with an overview of the presented studies.

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### Key Concepts

In the past few decades use of the internet has increased sharply, to a state where much of our everyday lives are spent and conducted online (Cheever & Rokkum, 2015; G. M. Chen, 2011). With the rise of social media platforms, many people now manage their social lives online as well as using platforms to get up-to-date news, seek support from others and share experiences (Sundar & Limperos, 2013). However, social media is not just useful for individuals to connect; organisations are able to harness the networking properties of platforms to broadcast information, advertise, alert, and monitor behaviour (McCorkindale & DiStaso, 2014). Social media opens the door to a vast array of perspectives, and platforms can give a wide-reaching public voice to anyone with internet access; users can publicly comment on content, or create their own profiles to post original content and have others respond to them. Using social media can be a form of amusement and a means of passing the time, but it also serves useful informational purposes (Sundar & Limperos, 2013). For some, social media has created a whole new world of social interaction, providing access to people one might not easily encounter in the offline world (Naslund, Aschbrenner, Marsch, & Bartels, 2016; Zhao, Grasmuck, & Martin, 2008).

The immediate and convenient nature of online sources has led to the internet becoming a key source for health-related information. The ability to often remain anonymous has reduced the anxiety of asking personal health questions to others (Chan, Farrer, Gulliver, Bennett, & Griffiths, 2016; Rice, 2006). With the arrival of social media and associated bidirectional communication, health information-seekers are able to readily connect with those sharing similar health concerns (Li, Wang, Lin, & Hajli, 2018). One study found that of the 74% of US adults who use the internet, 80% of them have looked for information about health topics related to diseases/disorders and treatments online (Fox, 2011). Engaged groups of health-concerned users interact on social media, and utilise

platforms for sharing useful information and emotional support (e.g., people living with cystic fibrosis – Brooker, Barnett, Cribbin, Lang, & Martin, 2014; diabetic individuals on Facebook – Greene, Choudhry, Kilabuk, & Shrank, 2010; and food allergic/intolerant individuals on Twitter – Hamshaw, Barnett, & Lucas, 2017). For people caring for loved ones, social networking platforms can provide reassurance (Fox, 2011). Miller and Bell (2012) claim that not only does social media have great potential in supporting information searching and decision-making on health-related issues, it may also have positive implications for helping health professionals and supportive organisations better provide for consumers (e.g., through social media campaigns around health/safety – see Food Standards Agency, 2015). Thus, understanding how and why those with health concerns use certain features of social media platforms, or how they take-on-board the information they encounter, is essential in order to understand how to best support them in their health management ventures. One such health concern that requires continuous risk management and information assessment is that of food hypersensitivity – the focus of this thesis.

### **Focusing on Food Hypersensitivity**

Food hypersensitive (FH) individuals suffer reproducible negative symptoms whenever they eat a particular food. Food hypersensitivity denotes both food allergy and variants of non-allergic food hypersensitivity (e.g., food intolerance and coeliac disease; Johansson et al., 2008). Living with food hypersensitivities involves constant risk assessments surrounding the foods one consumes (Leftwich et al., 2011). Those with food intolerance wish to avoid repeatable adverse reactions such as bloating, constipation, vomiting and diarrhoea. Food allergic individuals, in more severe cases, must avoid allergen consumption that could lead to anaphylaxis (associated with breathing difficulties, sudden drop in blood pressure, and possible death). The role of social media in providing informational or social support for people with food hypersensitivities has received little empirical attention. Given that there is no cure for food hypersensitivity and avoiding consumption of the offending food allergen is vital, it is not surprising that many have taken to social media for information and support (Alvarez-Perea et al., 2018; Minson, Mukerji, & Rankine, 2016). Information such as product alerts are often delivered in real-time via social media platforms such as Twitter, and sources of support from those experienced in living with specific sensitivities (e.g., through forums, discussion groups, blogs and microblogs) can prove very beneficial (Hamshaw et al., 2017). Social media has also increasingly become a platform for supportive bodies and regulators to circulate information relating to food hypersensitivity, for example through alerts and recalls (see Food Standards Agency, 2018). Therefore, it is vital that we understand how to best provide important and useful material to those seeking health information on social media.

---

### **The Problem**

Social media is a key tool for gaining information (Go, You, Jung, & Shim, 2016). However, the extent to which social media information and those publishing content is considered credible, due to the often-unmoderated nature of platforms, is unclear (Lin, Zhang, Song, & Omori, 2016). This is especially significant when using social media for information regarding health (Coulson, 2017; Li et al., 2018). People often use the internet more generally to search for health-related information, perhaps before visiting the doctor or once they have seen their doctor (Fox & Duggan, 2013). Following a diagnosis, individuals are often very keen to gain as much information as possible surrounding their medical concern, or the medical condition of their child (Broome, Lutz, & Cook, 2015). The internet offers an abundance of potentially useful information, and 'social' media is a location many more internet users are starting to visit to gain the support and advice of those in similar situations, and with plenty of experience managing their medical conditions (Brooker et al., 2014; Greene et al., 2010; Hamshaw et al., 2017). Food hypersensitivities are one such example of medical conditions that require daily management and risk assessment (Leftwich et al., 2011). Medical experts are perhaps not always able to offer advice about living with food hypersensitivities day-to-day, and social media is a place such advice can be sought. However, with the repercussions of poor advice potentially being fatal or significantly damaging to one's health, the importance of getting access to suitably reliable social media information is clear. In sum, as social media further becomes a key venue for gathering information about health concerns such as food hypersensitivity, it is vital we understand how individuals use these platforms and in what way users assess the information available to them.

---

### **Research Objectives and Theoretical Orientation**

With regard to exploring the information preferences of those with food hypersensitivities on social media, this research had two main objectives: 1) to examine how and why FH-concerned social media users utilise platforms in relation to managing food hypersensitivity, and 2) to investigate how these users perceive and judge the information available to them on social media with respect to both posts and those posting. Specific research questions relating to these two over-arching aims, and links to each thesis study are outlined in Table 1.

The programme of research presented here was informed theoretically from social scientific perspectives that have explored finer details such as processing approaches and



discursive behaviours, and more generally, social media use and the integration of the online world and health management. As a primary overarching frame, uses and gratifications theory (UGT) was used in order to consider involvement in the social media world. Broadly, UGT assumes that certain needs can be satisfied by media; gratifications are obtained when needs are met by certain media sources (Katz, Blumler, & Gurevitch, 1973). Rather than a passive audience, UGT sees individuals as active 'users' of media (Sundar & Limperos, 2013). More recently, research has begun to explore new forms of media such as social media through a UGT framework (G. M. Chen, 2011; Johnson & Yang, 2009; Quan-Haase, Martin, & McCay-Peet, 2015; Sundar & Limperos, 2013; Whiting & Williams, 2013). Key reasons for social media use appear to surround informational, social and entertainment needs (Go et al., 2016; Johnson & Yang, 2009; Quan-Haase et al., 2015; Sundar & Limperos, 2013); it is expected that information and social needs are likely to drive social media use for FH-related reasons, and this is further explored through the four empirical studies. UGT has been noted as a potential forerunner in the integration of multi-method quantitative and qualitative approaches exploring new media technologies (Ruggiero, 2000), which further justified this theory as the primary focus (Yardley & Bishop, 2011). In addition, insights from Positioning Theory have helped highlight discursive devices utilised during debates surrounding FH issues via social media, for example, how people use discourse to locate and ascribe themselves and others in particular roles and with certain rights and duties (Harré, Moghaddam, Cairnie, Rothbart, & Sabat, 2009). Perspectives from processing theories also allowed an additional consideration of the central and peripheral processing that may be at play during assessments of credibility and persuasiveness of social media content (e.g., Petty & Cacioppo, 1986). In relation to this, perspectives from research on credibility and trust in online information (see Flanagin & Metzger, 2000, 2007; Metzger & Flanagin, 2015) provided insights into the ways FH-users judge social media information and perceive expertise in FH issues here.

Table 1

*Outline of how research questions are answered by each reported study*

Key Research Objectives / Research Questions	Study			
	1	2	3	4
<b>How and why FH-concerned social media users utilise platforms in relation to managing food hypersensitivity</b>				
How is FH information sought and exchanged via social media?	✓	✓	✓	✓
How are certain issues brought to attention during FH discussion on social media?	✓	✓		✓
How are frames deployed in debates around FH issues across different forms of social media?		✓		
How are frames drawn upon by individuals to (re)position and (re)present themselves in relation to managing FH risks?		✓		✓
What needs do using social media for FH-related concerns meet?	✓	✓	✓	✓
How do motivations for social media use vary amongst different groups of FH-concerned users?			✓	✓
<b>How FH-concerned users judge FH information available to them on social media</b>				
What characteristics of social media posts affect FH-concerned user judgements about credibility and persuasiveness?			✓	✓
How do FH-concerned users construct meanings around expertise on social media in food hypersensitivity?				✓
How do perceived experts in food hypersensitivities within the social media community construct meanings around expertise?				✓

*Note.* ✓ = research question has been a main focus for a study; ✓ = research question has been a secondary focus/partly considered via a study

### **Methodological Approach: A Short Overview**

A broadly social constructionist epistemological approach defines this research thesis; where how we perceive the objects and those around us are a product of how the world is represented through language (Braun & Clarke, 2013). Burr and Dick (2017) note, while people and objects possess definite properties, the interesting consideration for social constructionists is why specific properties assume importance. Social constructionist approaches imply a preference for qualitative research methods (Burr & Dick, 2017), and therefore the approach for this thesis has been primarily qualitative in nature. One study made use of quantitative analysis but stood close to the constructionist viewpoint, since the quasi-experiment aimed to explore the properties of social media messages that assumed importance in relation to perceptions of credibility. There is a general trend within social media research, still relatively in its infancy, to approach analysis quantitatively (e.g., with content or sentiment analysis, and volume statistics). Approaching social media data qualitatively gives a greater insight into the thoughts and experiences of its users. The research presented here takes a multi-strategy approach, since different forms of data analysis have shaped the research findings (Robson, 2011). This can also be described broadly as a pragmatic approach; since priority has been given to methods that are considered appropriate for answering the proposed research questions (Onwuegbuzie & Leech, 2005).

---

### **Research Significance**

Much of the work outlined here builds on previous literature related to the use of other forms of media and the internet more generally. However, this research adds to the body of knowledge regarding online health information seeking and social support specifically in relation to use of social media, where research is more in its infancy. Findings from the four empirical studies in this thesis provide insight into the ways in which people use social media and why they do so, as well as perceptions of credibility and expertise in relation to the health-related topic of food hypersensitivity. Thus, more can be understood about the specifics of social media use and awareness of associated content. The research has also been able to offer some valuable findings surrounding Twitter information in relation to credibility assessments, which are likely to be transferable to similar social media platforms with comparable functionality (e.g., link inclusion, liking and sharing functions). One key aspect of the work outlined here is in the exploration of how platforms not specifically designed for health-information purposes come to be adopted by patients and concerned-users in managing health issues. Insights can be used to provide supportive bodies and policy makers with information that can be used to help those living with long-term health conditions, such as food hypersensitivities, through application of the informative and networked social media environment.

---

## Thesis Structure

The research objectives described above will be outlined, addressed and discussed in the eight chapters<sup>3</sup> of this thesis, which are presented as follows:

**Chapter 1** – gives an overview of this thesis.

**Chapter 2** – offers a literature review that aims to provide a background to the four empirical studies and the theoretical perspectives utilised. An overview of the current knowledge and understanding of managing food hypersensitivities and of social media use in relation to health is provided.

**Chapter 3** – outlines the methodological approach taken in pursuing the research objectives. The broad ontological and epistemological stance is given and justified; an outline of the methods chosen for the empirical work is also presented. The issue of evaluating qualitative and quantitative research is discussed and linked to the present work. Reflections on the practical issues and challenges of working with social media data are considered. The chapter concludes with a discussion of the broader ethical considerations of working with social media.

**Chapter 4** – introduces Study 1, which was an exploratory qualitative study conducted to gain an understanding into the use of Twitter for FH concerns. Dissemination of new UK allergen legislation via Twitter in December 2014 provided an opportunity to observe FH-concerned users and stakeholders in action. Furthermore, this study also provided a benchmark for methodological approaches to analysing Twitter data qualitatively. The study utilised methods that collected different forms of hashtag data, and provided insights into the kinds of communication and the variety of users that were taking to Twitter to discuss FH issues around the time of the legislation release.

**Chapter 5** – in a similar way that the legislation release in Study 1 provided a snapshot into the Twitter use of those concerned with food hypersensitivities, Study 2 capitalised on a debate that arose on various social media platforms relating to the response of food businesses in adhering to the allergen legislation. One hundred chefs felt that innovation and creativity were being harmed by the requirement to state the presence of the 14 allergens in the dishes they served, and many FH-concerned consumers utilised social media to respond to this. The paper presented explored how the debate was framed and how those participating in the discussions were positioned. Multiple media and social media

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<sup>3</sup> **Please note:** This thesis adopts an alternative format that includes published manuscripts, those under review and in draft. As described by the University of Bath's doctoral QA7 regulations, each academic paper will have self-contained components that may overlap with other thesis sections or duplicate some material already presented. Separate reference lists are provided for each study manuscript. All other thesis chapter citations are referenced in a final overall reference list.

qualitative data sources were analysed, including news articles associated with the chefs' argument, comments posted online, and Twitter data. The varied insights obtained here not only alluded to concerns surrounding managing FH risks when eating out, but also how different corners were being fought (i.e., from business and consumer perspectives), and how participants in the debates justified their own and the position of others in constructing their arguments.

**Chapter 6** – as indicated in Studies 1 and 2, there were FH-concerned users posting and interacting regularly on social media. Users were sharing information and appeared to have established a site for collective support. Chapter 6 reports findings from Study 3: a quasi-experimental study that firstly aims to verify the key motivations for social media use (from a UGT perspective). Following this, and linking with findings in Study 2 relating to legitimising claims and positioning oneself and others, Study 3 investigates perceptions of credibility and persuasiveness related to particular features of Twitter posts (likes and links). Users were shown as primarily utilising social media for FH information and social support reasons. Web-links within tweets increased ratings of credibility and persuasiveness.

**Chapter 7** – allied with concerns relating to the credibility and persuasiveness of information and content-authors on social media is the issue of perceived expertise. In the final study, findings from qualitative email interviews exploring perceptions of expertise in food hypersensitivity on social media are presented. Perspectives come from FH-concerned social media users and individuals already considered expert in this area (as noted by participants in Study 3). The paper highlights several processes employed by users when assessing the expertise of those on social media, and builds on ideas associated with likes, retweets and use of links explored in Study 3. The study also highlights some concerns in relation to seeking information on social media in relation to a health concern like food hypersensitivity.

**Chapter 8** – provides a general discussion of the main research findings presented in the four empirical studies and aims to reflect links between them in terms of comparable findings and their theoretical relevancies. The contribution of this thesis is considered, as well as limitations and avenues for future research.

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## CHAPTER 2 - LITERATURE REVIEW

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### Overview

This chapter introduces the literature and perspectives that form the backdrop and basis of the empirical work. I begin by outlining the research focus, food hypersensitivity, defining terms, considering prevalence, as well as challenges associated with living with food hypersensitivity and how they have been considered thus far. One of the key challenges considered is that of eating outside the home, where risk to one's health often becomes most salient. Eating out with a food hypersensitivity is a focus for much of the work outlined here. In managing food hypersensitivity, one option that individuals now have is to turn to the internet for support; and within this one key online setting is social media. I will review different social media platforms available and draw upon usage statistics and changes in web functionality to map the social media landscape today. I consider literature around individual use of social media, and in doing so draw upon uses and gratifications theory to consider the needs social media can meet. I reflect on how increased use of social media platforms for reasons relating to health poses important issues, such as the credibility both of the information itself as well as of those posting content online. I close by considering organisational use of social media, and reflect on public-organisation interaction, and how organisations are increasingly utilising platforms and user-data to help manage risks.

---

### Food Hypersensitivity

#### Classifying Food Hypersensitivity

Despite the terms food allergy and food intolerance often being used interchangeably, medically these are quite separate conditions. Food intolerance describes repeatable unwelcome reactions to foods, which typically people would not react to. The underlying mechanism involved in food intolerance is unknown, but the cause is believed not to involve the immune system (Lomer, 2015). Symptoms of food intolerance most commonly affect the gut or skin and usually occur some hours following ingestion of the offending food. Indications of intolerance range from mild/moderate (colic, reflux, bloating, and constipation) to severe (severe persistent vomiting or diarrhoea, significant blood in stool, faltering growth). Adverse reactions are characteristically only described as allergic if they are caused by mediated reaction to immunoglobulin E (IgE), an antibody that triggers food allergy symptoms, which is confirmed by clinical tests. Food allergy often presents as a rash or swelling very rapidly after eating; in its most severe form, known as anaphylaxis,

a reaction can cause breathing difficulties, sudden drops in blood pressure, and on rare occasions can be fatal (Turner et al., 2015). Food allergy has no cure and avoidance of the offending food allergen(s) is central to managing the condition. Anaphylaxis caused by accidental ingestion of a food allergen is treated through intra-muscular injection of adrenalin via an auto-injector device; milder reactions may be treated with oral antihistamine medication (Holloway & Sharma, 2012). Recent reviews into the classifications of food allergy and intolerance propose that any adverse reaction to food should be termed 'food hypersensitivity' (Johansson et al., 2008). When mechanisms associated with the function of the immune system have been established, Johansson and colleagues recommend 'food allergy' as an appropriate term. Where the role of Immunoglobulin-E (IgE) has been confirmed (i.e., when the immune system overreacts to a food allergen by producing IgE antibodies), the term 'IgE-mediated food allergy' should be used. In relation to this, 'anaphylaxis' classifies severe allergic reactions to foods. In the case of coeliac disease, an autoimmune disease characterised by damage to the small intestine lining due to the body's reaction to the protein gluten, classification within food hypersensitivity is less clear. The condition shares some common features with IgE-mediated food allergies; it is immunologically mediated but not by antibodies (Ludvigsson et al., 2013). Therefore, some have considered coeliac disease within non-IgE mediated food allergy (Cianferoni & Spergel, 2009), but the delayed reaction is not typically associated with food allergic characteristics. However, since coeliac disease demonstrates an adverse reaction to a food it is considered within the frame of food hypersensitivity here. Specific classification of the condition is beyond the scope of this research, only that avoidance of a specific food allergen is required to stay healthy. Johansson et al. (2008) suggest that other reactions to foods such as 'food intolerance' would better be referred to as 'non-allergic food hypersensitivity'. Figure 1 outlines this classification. The term food hypersensitivity is utilised throughout this work to encompass all adverse reactions to foods.

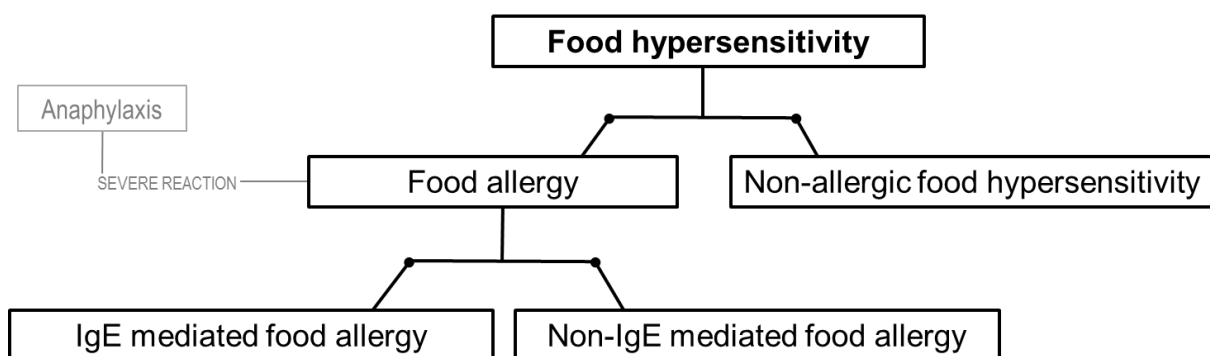


Figure 1. Classification for food hypersensitivity

Food allergies and intolerances affect around 8% of children and 2% of adults in the UK (Food Standards Agency, 2017), and it has been recognised that less prevalent allergies are appearing more regularly within the UK, such as kiwi fruit, soya, mustard and chickpea (House of Lords, 2007). The 2007 House of Lords Science and Technology report stressed that the UK may soon see up to 3% of adults with serious food allergies. In terms of coeliac disease, approximately 1% of people in the UK are thought to have the condition, however research by Coeliac UK (2016) suggests that only 24% of those with the condition have been clinically diagnosed, meaning about half a million people in the UK may have the autoimmune disease but do not know. Having a first-degree family member (e.g., parent or sibling) with the condition further increases chances of having coeliac disease to one in ten (Coeliac UK, 2016). Sicherer (2011) notes that if milder reactions to some foods (e.g., certain fruits and vegetables) are additionally considered alongside allergic and intolerant conditions, prevalence of food sensitivity could exceed 10% in some regions. It is important to understand that prevalence of food hypersensitivity varies by factors such as geographic location, age, and possibly ethnic background (Sicherer, 2011). What is also central to note in relation to the work outlined in this thesis, is that many people may wish to avoid consuming certain foods they associate with adverse effects on their health. Although I focus on food hypersensitivity in exploring social media use, this is not to say that all individuals considered will have a diagnosed food hypersensitivity.

European legislation introduced in December 2014 saw FH individuals and carers gain additional support in managing food hypersensitivities (Begen et al., 2017; Begen et al., 2018; Food Standards Agency, 2013). This legislation, called the Food Information for Consumers Regulation No. 1169/2011 (EU FIC), brings food labelling into a single legal framework which simplifies and consolidates existing labelling law, e.g., combining requirements for meat origin labelling, minimal text size, as well as nutritional and allergen information (European Commission, 2014). The Food Information Regulations (FIR) contains national measures and provisions on the enforcement of this European legislation in the UK. Food retailers are now required to provide customers with ingredients information relating to 14 main food allergens: celery, cereals containing gluten (e.g., wheat, rye, barley, and oats), crustaceans (e.g., crab, lobster, prawns), eggs, fish, lupin (lupin flour and seeds), milk, molluscs (e.g., mussels and squid), mustard, tree nuts (namely almonds, hazelnuts, walnuts, cashews, pecans, brazils, pistachios, macadamia nuts or Queensland nuts), peanuts, sesame, soya, and sulphur dioxide (found in dried fruits, as well as drinks). The regulations specify that this information should be provided for both packaged and non-prepacked food, including food served in restaurants, cafes, take out facilities and other places where food is served such as schools, nurseries, hospitals, and airlines. Eating out establishments have discretion over how this information is provided to consumers; it could be through written information on signs, menus, or passed on verbally via staff.



### **Managing Food Hypersensitivity**

Although legislation like the FIR can help support those seeking to avoid certain food allergens, those with food hypersensitivity (or caring for those who do) face significant challenges on a daily basis. Not only can living with food sensitivities have a physical health impact, it can also include social and financial burdens as well as effects on psychological wellbeing and subsequent quality of life (Cummings, Knibb, King, & Lucas, 2010; Knibb, 2016; Valentine & Knibb, 2011). In terms of physical health, evidently accidental ingestion of the offending allergen will have unwelcome and for some potentially life-threatening consequences. However, living with food hypersensitivity can also limit one's social life, which can have a knock-on effect on emotional wellbeing (Marklund, Ahlstedt, & Nordström, 2007; Rouf, White, & Evans, 2011). Food is frequently at the centre of social activities; an adult or parent may need to constantly check if foods contain allergens, not only when eating out but when dining with friends or family (Sampson, Muñoz-Furlong, & Sicherer, 2006). Restrictions can also have a negative effect on relationships and family life, for example in organising holidays or even something as simple as where to go for a meal (Jacobs, 2014). Moreover, food products that do not contain certain allergens ('free-from' foods) are typically more expensive to buy. Research by Coeliac UK (2017) illustrated that in September 2017 the cheapest gluten-free loaf of bread cost 37.5p per 100g yet a gluten-containing loaf worked out at 4.4p per 100g. Parents of FH children face additional challenges. Responsibility for the wellbeing of a FH child and constant vigilance required to avoid ingestion of offending allergens has been shown to place a significant burden on families with a food allergic child. Such circumstances impact on health-related quality of life (King, Knibb, & Hourihane, 2009), emotional well-being, daily activities and social occasions (Bollinger et al., 2006; Knibb & Semper, 2013). Parents, and particularly mothers (often more frequently responsible for day-to-day endeavours), report high levels of stress and anxiety in caring for their food allergic child (Cummings et al., 2010; Marklund et al., 2007; Rouf et al., 2011). Through building knowledge, individuals and carers become very capable at managing hypersensitivities, especially in their own home and when preparing their own food (Broome et al., 2015). However, entrusting management of allergens to food businesses when eating outside the home can pose additional concerns (Begen et al., 2018). In sum, the research evidence indicates that those managing food hypersensitivities either as an adult or parent, face considerable challenges.

Eating outside the home can pose significant risks and concerns for those living with a food hypersensitivity. A systematic review of 24 studies observed that almost a third of accidental allergen exposure and reactions occur in restaurants, with almost a quarter occurring in the work or school setting (Versluis et al., 2015). In fact, eating out has been implicated in half the deaths related to food allergen consumption (Pumphrey & Gowland, 2007). In terms of quality of life when eating out, negative effects have been linked to the stigmatisation induced by 'going public' about having a food hypersensitivity (e.g., making

claims about needing to avoid particular allergens to waiting staff at restaurants). In an eating out context not only is the risk of a reaction greatest, it is here that the identity of a FH individual is potentially most salient (Barnett & Vasileiou, 2014). A study exploring experiences of nut-allergic consumers highlighted how checking whether food options contained nuts was a source of embarrassment for many, with the desire to avoid such embarrassment sometimes resulting in increased risk taking (Leftwich et al., 2011). Furthermore, Begen et al. (2016) identified a sense of embarrassment and reluctance when making enquiries to staff about the top 14 food allergens; wanting to avoid drawing attention to oneself was one of the reasons consumers preferred written allergen information. Being ascribed the label of a fussy or picky eater challenges the legitimacy of a FH individual's claims about the need to avoid particular allergens (Barnett & Vasileiou, 2014).

One approach sometimes employed to avoid negotiations about food choices inside the venue, and to avoid the perceived embarrassment of asking about allergens in foods, involves checking menus and allergen information via the internet prior to visiting food venues (Begen et al., 2016). In fact, the internet has become increasingly utilised for seeking health-related information (Eysenbach, 2002; Fox & Duggan, 2013; Lin et al., 2016). With the development of Web 2.0 (i.e., the advance of two-way communication and user-generated content functions online), social networking platforms (e.g., online support groups and forums) have become useful venues for health-concerned individuals to gain the knowledge and experience from others in similar circumstances. In the FH realm, research has begun to explore use of various online communication platforms by those living with or caring for someone with food hypersensitivity and the benefits on management of conditions (Alvarez-Perea et al., 2018; Broome et al., 2015; Coulson & Knibb, 2007; Minson et al., 2016). In light of this, I now turn to consider the use of social media platforms today, and chart their increasing use for reasons related to health information and social support.

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## **Social Media**

### **Surveying Social Media**

Social media can be seen as a variety of internet-based platforms that utilise the technological advances of Web 2.0 such as the ability to collaborate and share user-generated information (Kaplan & Haenlein, 2010). The Oxford English Dictionary (2018) defines social media as “websites and applications that enable users to create and share content or to participate in social networking”. Social media enables individuals to “access and connect to a boundless world to make friends, share information, access entertainment, and receive news” (Ngai, Tao, & Moon, 2015, p. 41). Some social media sites are designed explicitly to enable and encourage these interactions, such as Facebook and Twitter. Others embody some of the functions of social media (e.g., posting, commenting, liking and sharing) where this is not the primary purpose of the site; this would include forums, chat rooms and comments systems following online articles/publications/news. In the UK it

appears that Facebook, Twitter, YouTube, Instagram and LinkedIn are the top five platforms (Revive Digital, 2018). While certain features of social media are consistent, usage cultures that emerge around particular platforms can vary (Boyd & Ellison, 2007). Platforms can allow maintenance of pre-existing social networks, others more readily permit strangers to connect based on shared networks (e.g., mutual followers) or interests (e.g., liked posts, pages or use of corresponding hashtags). The extent to which platforms foster or restrict certain elements of communication also varies. Post length restrictions may be in place or the ability to embed images and videos may vary. Moreover, use of platforms will be dependent on user preferences and motivations (Boyd & Ellison, 2007). Nevertheless, the creation of social media has led to an interesting and engaging online world since so many make their “private and personal thoughts instantly and globally public – a historically unprecedented psychological experience” (Mc Mahon, 2015, p. 728).

The most recent Oxford Internet Survey (Dutton & Blank, 2013) suggests internet use in Britain has risen substantially; 78% of the population (14 years and over) use the internet, and around two thirds of internet users use social networking sites. The survey also noted that people are spending more time using social media to find information online (e.g., from links recommended within their networks), as opposed to utilising typical search engines such as Google (Dutton & Blank, 2013). Dutton and Blank (2013) emphasise that as internet use has diversified, it is less important to focus on whether people use the internet or not, and instead more valuable to explore how and why people use it. Social media sites such as Facebook and Twitter are now used routinely by many individuals, groups and organisations. Research has also highlighted that use of platforms other than Facebook, such as Twitter, Instagram, and Pinterest have shown increased use (Duggan, Lenhart, Lampe, & Ellison, 2015). Platforms are now often accessed several times a day since the evolution of smartphone apps and mobile data availability. Many would argue that social media sites have become integral to their everyday lives, and this further highlights the importance of understanding how and why people use them (Ngai et al., 2015).

Research exploring social media has mirrored the exponential rise of social media itself, and platforms are now extensively used for both personal and organisational reasons (Gruzd, 2015; Ngai et al., 2015). In June 2018 a Google Scholar search for the term ‘social media’ in titles provided 114,000 articles, with ‘Facebook’ 84,400 and ‘Twitter’ 57,600. A large-scale content analysis of existing social media literature up to 2015 found that research was predominately associated with: health, educational applications, computer science, organisations and marketing, and political and social engagement (Gruzd, 2015). In pursuing new perspectives on social media, Gruzd (2015) stresses that researchers must consider why people adopt social media, what they do on social media both individually and collectively, and what needs are being satisfied by these platforms.

### **Social Media Motivations and Identities**

As outlined above, the growing uptake of social media and social networking websites has led to a new online world of communication, collaboration, and information sharing (Cheung, Chiu, & Lee, 2011). Today, many people's private lives are linked to their social media profiles; and most individuals will visit these sites daily (Duggan et al., 2015; Dutton, Blank, & Groselj, 2013). Social media has been found to act as a complementary information network for some sections of the population; individuals who considered being well-informed as highly important, who are motivated to find additional information associated with a risk, and who are generally more sensitive to risks (Kuttschreuter et al., 2014). Those utilising multiple online media platforms are typically a relatively young proportion of the overall population (Kuttschreuter et al., 2014). However, studies have shown that those previously considered rare contributors to the internet (aged 55 and over) are now one of the fastest growing demographics on social media platforms such as Facebook (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). In terms of reasons behind social media use, individuals demonstrate a desire to connect with others (G. M. Chen, 2011), fit in with the crowd (Cheung, Chiu, & Lee, 2011) and avoid missing out (Przybylski, Murayama, DeHaan, & Gladwell, 2013). In addition, users also turn to platforms for information and as a form of entertainment and passing the time (Go et al., 2016; C. S. Lee & Ma, 2012).

Social media sites are also a key way many people choose to manage and refine their identity (Mc Mahon, 2015). An individual's social media presence online is determined in part by the affordances of chosen platforms (Pearson, 2009). Those using LinkedIn, for example, are likely to feel the need to portray a more professional persona on the platform, compared to the more friendly/personal style of a Facebook profile (Mc Mahon, 2015). It is now inappropriate to think of the online world and offline world as two separate environments, and that online behaviour does not have consequences in life offline, e.g., within friendship groups, with event creation/invites, and photo-sharing (Mc Mahon, 2015; Zhao et al., 2008). For many, social media can provide new benefits and resources, for example, in overcoming difficulties with face-to-face interaction and increasing chances to connect, both online and potentially in the physical world (Naslund et al., 2016; Zhao et al., 2008).

Pearson (2009) highlights how like actors playing a role, users of online social networks can portray their image however they desire, utilising identity cues/claims that can both resemble or differ from reality. Privately social media may be utilised to develop the strong relationship ties an individual has within their online network. On a more public platform like Twitter, users can develop and maintain diverse and wider reaching networks of weaker relationship ties, often with little time or emotional investment (Pearson, 2009). The social media setting enables users to "stretch the truth" in an effort to project a more socially desirable identity online (Zhao et al., 2008). Nevertheless, conformity to social norms can still be of importance here; in public/visible environments people are more likely to present their identity or behave in ways that are in-line with normative expectations

(Cinnirella & Green, 2007; Hall, Grogan, & Gough, 2016; Lovatt, Bath, & Ellis, 2017). Positioning Theory (see Harré et al., 2009) arguably provides a useful perspective on the use of and negotiation of roles on social media. Storylines play an important role as they allow claimants to position themselves within a specific social episode (Harré & Moghaddam, 2011) and can be seen in interactions such as when explaining one's expertise or experience during online discussion; the assignment of roles within social media communities can be dependent on the experience and commitment to posting (Gleave, Welser, Lento, & Smith, 2009; Pfeil, Svangstu, Ang, & Zaphiris, 2011). Tirado and Gálvez (2007) used the concept of positioning to explore discourse on university online forums, where the act of positioning oneself and others was based on discussions of commitment or non-commitment to a cause. Positioning oneself (reflective positioning), positioning others (interactive positioning), taking up a position constructed by others, or challenging their positions may serve the purpose of defining oneself as different from other groups (Harré & Moghaddam, 2011). Overall, the way users chose to portray themselves on social media may be aligned with their motivations for using these sites. One such theory that considers why individuals might seek out certain types of media to satisfy specific needs is uses and gratifications theory.

### **Uses and Gratifications Theory**

Uses and gratifications theory (UGT) aims to explain how and why people actively seek out certain types of media to satisfy specific needs (Katz et al., 1973). Historically, UGT explored how traditional media (such as television, newspaper and radio) allowed an individual to enhance their knowledge, increase relaxation, benefit social interactions/companionship, and promote entertainment or escapism (Katz et al., 1973). Rather than a passive media audience, individuals were seen as active media 'users' (Sundar & Limperos, 2013). More recently, research has begun to explore social media through a UGT framework, since UGT's original concepts of media use can be easily translated to new forms of media (G. M. Chen, 2011; Johnson & Yang, 2009; Whiting & Williams, 2013). Thus, UGT can be employed to explore information seeking and sharing behaviours that users of social media display, and potentially shed light on the motives for their actions (i.e., the gratifications these behaviours convene).

After reviewing a number of recent UGT studies using new media, Sundar and Limperos (2013) noted that broad gratifications emerged related to specific social and information functions. Using social media for entertainment purposes, for example, to relieve boredom, pass the time and relax, have also been found to be motivations for social media use (Papacharissi & Mendelson, 2011; Park, Kee, & Valenzuela, 2009). The now interactive nature of the internet provided by social media triggers gratifications related to user activity, the need to connect, navigability of information, and content creation/customisation (G. M. Chen, 2011; Johnson & Yang, 2009; Sundar & Limperos, 2013; Whiting & Williams, 2013). Research has suggested Twitter use involves several motivations that relate to information and social engagement such as tweeting to gain attention (Rui & Whinston, 2011), networking and engaging with others (Syn & Oh, 2015)

as well as distributing and discussing news content (Gleason, 2010). UGT-specific perspectives on Twitter have demonstrated that users gain a range of gratifications relating to information and social networking (Quan-Haase et al., 2015; Quan-Haase & McCay-Peet, 2016). Research in this area thus far has suggested that the provision of information and of social support may be primary gratifications that using Twitter (and potentially other platforms) can provide (G. M. Chen, 2011; Johnson & Yang, 2009). A key area where information and social support from others is often sought is health, for example, to gain specific information about a health-issue or to take comfort in sharing experiences of those with similar concerns (Fox, 2011). In light of this, I now consider the potential of social media for health-related matters, particularly relating to information and social support.

### **Social Media Use for Health-related Reasons**

Health information-seekers can readily connect with those who share similar health concerns via social media (Brigden, Barnett, Parslow, Beasant, & Crawley, 2018; Broome et al., 2015; Lin et al., 2016; Rouf et al., 2011; Sudau et al., 2014) and information circulated among peers, especially those perceived to be similar, may be perceived as more influential than formal expertise (Lin et al., 2016; Paek, Hove, Ju Jeong, & Kim, 2011). Groups of health-concerned users have been seen to interact on social media, utilising platforms for sharing useful information and emotional support around features of their conditions, for example, people living with cystic fibrosis (Brooker et al., 2014), with diabetes (Greene et al., 2010; Shaw & Johnson, 2011), and people living with multiple sclerosis (Synnot et al., 2016). Online forums/discussion groups are used by individuals who wish to keep up-to-date with the latest developments associated with their health conditions, for instance, available treatments and medicines as well as recent research publications (Synnot et al., 2016).

For people living with or caring for loved ones with particular health issues, social networking platforms that give access to people in similar circumstances can be a source of reassurance and support (Fox, 2011). However, having many “authors” of relevant information on social media can pose difficulties for credibility assessments, since the origin and development of a source can become difficult to authenticate (Metzger & Flanagin, 2015). The level of accuracy an information-seeker is aiming for, their “accuracy goal”, will vary when using the internet (S. Chen & Chaiken, 1999; Metzger & Flanagin, 2015). When using social media, for example, information seeking can be quite casual, where accuracy in the information is less vital (e.g., searching for ideas on Pinterest). However, when considering health information, accuracy of information can be very important. Factors associated with authors of information on social media such as perceived knowledge, reputation, associations with other users, and recency of the information provided can all have an effect on perceptions of credibility (Djafarova & Trofimenko, 2018; Hall et al., 2016; Lovatt et al., 2017; Westerman, Spence, & Van Der Heide, 2014). A lack of verification systems or formal gatekeepers, and how in most cases any user can publish information on platforms, means it is essential to understand how people assess the credibility of the information they find (Go et al., 2016; Y. W. Lee, Strong, Kahn, & Wang, 2002; Meitz, Ort,

Kalch, Zipfel, & Zurstiege, 2016). One approach users employ in vetting social media information is to look to official organisation accounts (Kuttschreuter et al., 2014). Furthermore, organisations have noted the usefulness of platforms in both disseminating information about health concerns and utilising social media data to learn more about potential risks (Draper et al., 2016; A. Gough et al., 2017; Regan, Raats, Shan, Wall, & McConnon, 2014).

### **Organisations and Social Media**

Not only do individual users seek information from larger organisational accounts on social media, many organisations themselves now use social media to help support and reach out to specific communities (Rutsaert et al., 2014; Shan et al., 2015). Disseminating information through 'electronic word of mouth' can be a key strategy for organisations wishing to get a message out to their audience (Kietzmann & Canhoto, 2013). Schemes that aim to promote citizen and government collaboration on social media have been seen to be effective in spreading the word across multiple social media networks; approaches such as utilising specific hashtags or group pages can increase effectiveness by locating related posts in one place and increasing the likelihood a message will be shared (A. Gough et al., 2017; Panagiotopoulos, Bigdeli, & Sams, 2014; Van De Velde, Meijer, & Homburg, 2015). Furthermore, bringing like-minded users together via a specific issue on social media can solidify action by users, since individuals become aware of other users sharing similar concerns and experiences (Choi & Park, 2014; Graham, Jackson, & Wright, 2016).

In terms of real-time updates and announcements, Twitter is often the platform of choice for organisation-consumer communication (Panagiotopoulos, Barnett, Bigdeli, & Sams, 2016; Panagiotopoulos et al., 2014). Twitter as a social media platform has become increasingly important in risk communication (Draper et al., 2016; Panagiotopoulos et al., 2016). Managing risk in the context of food hypersensitivity can be considered a social enterprise (Nettleton, Woods, Burrows, & Kerr, 2009). As well as the immediate social networks of FH individuals, a range of organisations are enrolled in risk management. These may include support groups and charities, as well as businesses concerned with food safety, information provision, training and product labelling. As a news-style platform operating in real-time, information on Twitter can be rapidly disseminated, publicly discussed, and proliferate through the process of retweeting (Rutsaert et al., 2014). Information on Twitter takes the form of short comments (tweets) that can contain hashtags to organise post topics (by linking posts with matching hashtags into one feed), tag accounts of other Twitter users, and embed links to other media sites. Each tweet is associated with data highlighting the number of times it has been shared (retweeted) and liked (Bruns & Burgess, 2015). The availability of this information has served to focus research interest in Twitter (Ahmed, 2017; Brooker, Barnett, & Cribbin, 2016). Organisations aiming to help in risk management can draw on tweet data for potential insights from the textual content itself (Gaspar et al., 2014; Vidal, Ares, Machín, & Jaeger, 2015), associated sentiment analysis (Gaspar, Pedro, Panagiotopoulos, & Seibt, 2016), and links with other types of data such as demographics (Abbar, Mejova, & Weber, 2015) or geolocation information (Widener &

Li, 2014). These bodies have been seen to successfully utilise these advantageous features of social media for food-risk communication as well as health and safety campaigns (Food Standards Agency, 2015; Kuttschreuter et al., 2014; Miller & Bell, 2012; Panagiotopoulos et al., 2016). Platforms can assist in managing public reactions toward risk events, as well as encourage appropriate behaviour, calm, educate, and increase awareness on an issue (Bramlett Mayer & Harrison, 2012; Panagiotopoulos et al., 2016; Rutsaert et al., 2014). Organisations are seen to both push information out to consumers as well as seek to learn from the information that consumers are posting themselves (Panagiotopoulos et al., 2016; Regan, Raats, et al., 2014). The UK Food Standards Agency recently analysed Twitter data to help detect outbreaks of Norovirus (a stomach virus that causes vomiting) to inform the timing and location of interventions (Poppy, 2017). Thus social media is likely to continue to play a crucial role in how both individual users and organisations seek and share information about health and associated risks.

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## Conclusion

This review has outlined the topic of food hypersensitivity, and specifically the challenges those living with various food hypersensitivities face in managing their condition (e.g., when eating outside the home). In consideration of this, the ways that FH individuals might gain information and social support via the internet and social media in relation to their circumstances was brought to attention. Thus, the ways social media is used by both individuals and organisations in everyday life and for reasons relating to health were considered.

This thesis adopts UGT as an overarching perspective when considering individual and organisational involvement in the realm of social media. As has been noted, UGT assumes that certain needs can be satisfied by media in its various forms; gratifications are obtained when needs are met by media sources (Katz, Blumler, & Gurevitch, 1973). UGT sees individuals as *active* users of media (Sundar & Limperos, 2013), and this viewpoint is reflected throughout the empirical studies presented here when considering use of social media in relation to food hypersensitivity. UGT researchers have only begun to explore newer forms of media such as social media in more recent years (G. M. Chen, 2011; Johnson & Yang, 2009; Quan-Haase, Martin, & McCay-Peet, 2015; Sundar & Limperos, 2013; Whiting & Williams, 2013). This collection of studies aims to move further with this theory, by considering uses of social media in relation to a specific context: food hypersensitivity as a health concern. UGT was chosen as a primary perspective as it has been noted as a potential forerunner in integrating multi-method quantitative and qualitative research that explores new media technologies (Ruggiero, 2000).

Despite the broad applications of UGT, additional theoretical perspectives are drawn upon within the empirical studies presented here. Insights gleaned from Positioning Theory helps highlight discursive devices utilised during debates surrounding FH issues via social



media, for example, how people use discourse to locate and ascribe themselves and others in particular roles and with certain rights and duties (Harré, Moghaddam, Cairnie, Rothbart, & Sabat, 2009). This perspective also has particular applications in assessments of expertise on social media, in relation to oneself and of other users, and additionally aligned with a focus on framing undertaken during exploration of FH media coverage and associated debate. Furthermore, in order to more fully understand the ways in which users judge information available on social media (separate of needs/motivations), considerations gleaned from the elaboration likelihood model (ELM) and associated literature surrounding credibility of online information were also drawn upon to explore the kinds of processes at play during assessments of social media content (see Flanagin & Metzger, 2000, 2007; Metzger & Flanagin, 2015; Petty & Cacioppo, 1986). It was felt that these perspectives could be extended to consider social media perceptions more specifically, as will become clear in the associated studies.

Overall, by utilising food allergen concerns as an investigative lens, the research outlined in this thesis aims to explore how food allergen information is sought and exchanged via social media and why, how social media forms a network of support, and how credibility and expertise is constructed on social media platforms. As social media may become a venue used even more frequently for gathering information or seeking support about health concerns such as food hypersensitivity, it is important that we understand how individuals use these platforms and in what way they assess the information they encounter. From outlining the literature related to the studies conducted as part of this thesis, the primary research aims are:

1. to examine how and why FH-concerned social media users utilise platforms in relation to managing food hypersensitivity
  2. to investigate how these users perceive and judge the information available to them on social media with respect to the both posts and those posting
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## CHAPTER 3 - METHODOLOGY

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This chapter will build on the outline given in the introduction by further covering aspects of the research approach, including: key methodological choices, research strategies, associated challenges and ethical considerations. Full details of methods and methodological reflections are given in the four study manuscripts; this chapter provides an overall perspective and reflection on these issues.

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### Research Approach

Both designing and doing research is invariably constrained both by what is practical and ethical. Understanding one's research philosophy, methodological choices, strategies, and timescales during the research design phase can help ensure data collection techniques and analyses undertaken are appropriate and coherent (Saunders & Tosey, 2013).

This thesis will contribute to our understanding of methods that can be used to deal with social media data more generally, and build on our understanding of the experiences of FH individuals and the role social media can play in these peoples' lives. This work aims to make a methodological contribution to qualitative approaches for handling social media data; especially Twitter data where qualitative work is very much in its infancy and has the potential to flourish (Brooker et al., 2016; Brooker et al., 2014).

Research presented in this thesis is linked to European legislation around food allergen information, most particularly relating to the provision this makes for those with food hypersensitivity when eating outside the home. It seeks to understand the forms of information preferred by those with food hypersensitivities and thus make a positive contribution to policy in this area, and derive recommendations for how food businesses should provide allergen information. Findings will be beneficial to stakeholders supporting FH individuals such as the FSA, and food allergy/intolerance charities Allergy UK, Anaphylaxis Campaign, and Coeliac UK, aiming to improve the safety and wellbeing of those affected (e.g., sufferers or carers). These organisations have been involved in discussions relating to the presented research projects, through meetings, presentations, and attendance at associated workshops and events. Updating stakeholders and involving them in the progress of the research has been an important and valuable aspect of the research. As a researcher, I was able to gain a better understanding of the FH support context and stakeholder concerns. Stakeholders were able to offer their thoughts and

observations through experience gleaned supporting diverse FH concerns, such as different sensitivities (allergies, intolerances, coeliac disease, and so on), and varying circumstances, for instance, the newly-diagnosed and those caring for FH individuals. Colleagues at the FSA have provided useful feedback on the legislative context for this thesis, and encouraged progress and sharpened plans for the thesis via requesting project deliverables. Furthermore, contacts at Coeliac UK and Allergy UK were also highly valued in supporting participant recruitment during the research.

### **Situating the Current Research**

Ontology is associated with the central question of whether social entities are perceived as objective or subjective (Blaikie, 2009). Objectivism embodies an ontological position that asserts social phenomena and their meanings have an existence that is independent of social actors. On the other hand, subjectivism (constructionism or interpretivism) sees social phenomena as created from perceptions and actions of those social actors concerned with their existence (Bryman, 2016). Constructionism asserts that social phenomena and their meanings are continually being accomplished by social actors. The social constructionist epistemological approach defines how we perceive the objects and those around us as a product of how the world is represented through language (Braun & Clarke, 2013). People and objects do possess certain properties, but for social constructionists, the interesting consideration is why specific properties assume importance (Burr & Dick, 2017). This is the perspective broadly taken during this research. However, it will become clear that a pragmatic approach runs parallel to the reported studies here also, especially when a quantitative approach is employed in addition to the main qualitative emphasis.

Social constructionist positions advocate a preference for qualitative research methods (Burr & Dick, 2017), which does typify the primary approach to this thesis. One study made use of quantitative analysis, but was aligned with the constructionist viewpoint in so far as it sought to characterise properties of social media messages that assumed importance in relation to perceptions of credibility and persuasiveness. A pragmatic approach is taken overall; since priority has been given to methods that are considered appropriate for answering the proposed research questions (Onwuegbuzie & Leech, 2005). No one “best” method is argued for; just an acceptance that different methods will provide varied and valuable outcomes (Cornish & Gillespie, 2009). Thus, the thesis takes a multi-strategy approach, since different forms of data analysis have shaped the research findings (Robson, 2011). This approach is now considered in further detail.

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## Methodological Choices

### A Pragmatic Multi-strategy Approach

As noted, the work carried out for this thesis has been primarily qualitative, with one experimental study making use of solely quantitative analysis. Early work was approached in a comparatively exploratory manner, utilising a qualitative approach (e.g., for the exploration of Twitter data associated with food allergen legislation). Currently, there is a general trend within social media research (arguably novel in its own right), to approach data analysis quantitatively, for example, using sentiment analysis, and volume statistics. Although I have utilised some quantitative statistics, such as tweet volume information to describe the data, tackling social media data qualitatively not only gives a greater insight into the context and experiences of internet users, but also attempts to do something innovative with a relatively new form of data. Although the ability to analyse social media with such methods is a challenge, investigating the potential of employing or adapting existing methods of qualitative analysis to explore the small and infinite pieces of information that social media can provide will contribute to our understanding about the future of qualitative methods and social media data analysis (see Morison, Gibson, Wigginton, & Crabb, 2015).

This PhD research takes a multi-strategy approach, since different forms of qualitative and quantitative data analysis have shaped the research findings (Robson, 2011). Such an approach has begun to be seen as a new way to do research, an alternative position and one that is in opposition to the historical conflicts between quantitative and qualitative techniques (Robson, 2011). In fact, holding on to a qualitative/quantitative divide appears unfounded when considering there may be as much diversity *within* these categories as there is between them (Hammersley, 1996, 2016; Yardley & Bishop, 2011). Furthermore, the adoption of a theoretical stance (such as uses and gratifications theory as outlined in the introduction) that can complement and integrate different perspectives further supports such an approach. This more pragmatic take on conducting research gives priority to methods that are considered appropriate for answering the proposed research questions (Cornish & Gillespie, 2009; Onwuegbuzie & Leech, 2005; Yardley & Bishop, 2011). This approach has been taken in order to produce a more comprehensive picture of the research topic of food hypersensitivity and social media use.

### Quality in Qualitative Research

The potential to generalise qualitative research findings to the wider population, or to different environments, has often been debated amongst researchers (Larsson, 2009). This does not mean that qualitative and quantitative studies cannot come together to give greater understanding of an issue (Robson, 2011; Yardley & Bishop, 2011), just that qualitative findings must be considered differently to those associated with conventional statistical meaning (Lewis & Ritchie, 2003). Qualitative research takes into account the depth and variability of human lived experience. This commonly draws on findings from

everyday environments, or evokes an understanding from personal experience of those natural surroundings (Lewis & Ritchie, 2003). One such example might be the discourse taking place on social media that is rooted in real-time, every day, natural occurrences, which one might expect to reflect similar experiences to those outside of the online world. Here, FH concerned users on social media will arguably reflect many of the same values of FH concerned individuals in the offline world. These users are also evidently going to be managing their hypersensitivities in the real world. Here the focus of generalisability is not on probabilistic generalisations to the population, but providing insights that can be transferred to provide explanatory theory for different individual experiences in comparable contexts (Horsburgh, 2003; Popay, Rogers, & Williams, 1998). Thus, insights obtained during observation of FH behaviour on social media may be transferable in the future to other health concern contexts online.

Inevitably with any form of qualitative analysis, or in fact any form of analysis, what we do with the data is a subjective process (e.g., what method we chose for analysis). To combat these subjectivities, sensitive researchers will follow certain protocols to reduce the chance of subjective influences within their analyses. For example, in many qualitative approaches the process of producing codes is almost a 'constant comparison analysis' (Robson, 2011). This process of making comparisons, clustering, and checking, lays the foundations for subsequent interpretation made (Robson, 2011). Carrying out established approaches such as the thematic stages of analysis outlined by Braun and Clarke (2006, 2013) for the qualitative studies in this thesis, establishes a greater sense of rigorousness with an approach often judged overly subjective by researchers who align themselves with a more positivist quantitative epistemology. In establishing the reliability of my findings, I strived to ground interpretations in the data itself (Madill, Jordan, & Shirley, 2000).

Awareness of deliberations and processes that should be considered to both conduct and demonstrate good qualitative research practice further strengthen perceptions of the research quality. Yardley (2000) highlights matters relating to 1) context sensitivity, 2) commitment and rigour, 3) transparency and coherence, and 4) impact and importance. These elements of good qualitative practice have been considered throughout the research process here. Sensitivity to the context has been achieved through a process of thorough literary review and deliberations relating to ethical issues surrounding the kinds of data analysed within the empirical studies. Thus, in-depth engagement with the topic of food hypersensitivity was at the forefront of this thesis; the participant perspective was at the centre of the conducted investigations (Madill et al., 2000). Approaches such as the interviews utilised during Study 4 directly allowed individuals to tell their own stories in relation to FH social media use and expertise. I was careful to strike a balance between breadth and depth of data. In the analysis of social media data, I was cautious to avoid both restricting the data too excessively (e.g., through a too narrow focus), but at the same time careful to avoid including so much complexity that the resulting analysis suffered. A strength of the thesis studies is that they reflect a breadth of perspectives, for instance, social media users interested in FH issues, media sources, online debates, FH individuals and parents, and perceived FH social media experts. Commitment to developing my methodological

competence was a key consideration during the project process. By developing established skills and learning new approaches through engagement with more experienced peers, I was able to demonstrate a commitment to ensuring that the most appropriate method was taken and conducted to a high standard. In relation to this, coherence was achieved by demonstrating fit between theory and method. One key example here was how the analysis of frames in Study 2 aligned with Positioning Theory, and the way in which frames could be employed by users to aid in the act of positioning. In terms of impact and importance, both the theoretical understandings and the practical implications of the conducted research have been considered throughout. Yardley (2000) specifically highlights practical considerations for community, policy makers, and health workers in health psychology research. The empirical studies here highlight several issues that are of importance to these groups, which are discussed within the research papers and thesis discussion.

In the realm of qualitative research, reflexivity is especially essential and even more important perhaps when one researcher is primarily responsible for analysis. Reflexivity is a key strategy for quality control in qualitative research; understanding how the whole research process might be impacted by the experiences and positions of the researcher (B. Gough, 2016). Berger (2015) highlights how “researchers need to increasingly focus on self-knowledge and sensitivity; better understand the role of the self in the creation of knowledge; carefully self-monitor the impact of their biases, beliefs, and personal experiences on their research; and maintain the balance between the personal and the universal” (p.220). I have tried to be aware of my own experiences throughout the research process, and how these may affect the way I see aspects of the data I have collected or the research questions I have formulated. By keeping a reflective journal, I enlisted a degree of ‘self-supervision’ throughout all stages of the research process (Berger, 2015). I plan to reflect on thoughts from this journal in the final thesis discussion.

### **Quality in Quantitative Research**

The critical assessment for value of research is not the methods utilised, but whether fundamental features of good research are demonstrated. These characteristics comprise rigour in implementation, appropriate analytical choices in relation to both theory and data, transparency and consistency, and ultimately implications that will benefit humankind in some way (Yardley, 2000). As discussed so far, such features have been paramount in approaching and outlining this multi-strategy thesis.

While progressing with my early research approach, it became clear that although one could infer the processes at play when people are using social media or judging social media information, a certain degree of “reading between the lines” was necessary. We were able to link theory and literature with our insights in order to suggest certain explanations (Horsburgh, 2003), for example, in relation to information and social use of Twitter and links with UGT research. However, it was felt in order to compliment insights by confirming specific motives for use and how features of platforms can influence behaviour and perceptions, a quasi-approach was necessary to explore underlying mechanisms involved in social media use. Study 3 (Chapter 6) will describe the approach

taken further, but it is important to note slight detachment from the naturally-occurring, lived experience and personal reflections explored by the other studies presented here. This contrasts with the qualitative approach of the other studies, but with an overarching theoretical frame and the pragmatic outlook taken, such an approach was still considered valuable and allied with the overall research objectives.

### **Data and Analysis Overview**

Throughout the empirical studies that form this thesis, various samples of data have been used to answer specific research questions. Furthermore, different kinds of analytic technique have been employed to examine the data. An overview of the data and associated analyses for each study is outlined in Table 2.

To survey the Twitter landscape in relation to FH concerns, Study 1 took an exploratory approach in utilising hashtags associated with FH legislation and discussion. Thematic analysis was chosen to scrutinise the tweet data. A qualitative approach, and specifically one that could identify overarching themes across the dataset, would prove most beneficial in exploring how users were communicating on Twitter in relation to FH issues. It was hoped that this approach would provide a springboard for subsequent investigations. Having established methods for analysing tweet data in a typical thematic manner, Study 2 was able to build on this approach by integrating tweet data into a consideration of media coverage associated with FH concerns. Data from Twitter is considered closely aligned to newsworthy events and traditional media reporting (Farhi, 2009; Petrovic et al., 2013), which justified integration of both social media and traditional online media sources. The analysis of frames allied appropriately with the theoretical approach to the data. The process of positioning during discourse outlined by Positioning Theory linked well in how frames could be employed by users and media reporters to assign certain rights and roles to those involved in the debate. To examine the characteristics that may affect how users judge information on social media in relation to food hypersensitivity, and not just those performing on platforms, Study 3 took a quasi-experimental approach. By considering features that may be at play during social media observations, such as social cues and links to further information, Study 3 attempted to unpick some of these elements to build a better picture of FH social media interaction. Survey data was also collected to help identify correlations between various demographics and types of social media use. The quantitative analysis was considered the most appropriate method in developing an underlying understanding of social media perceptual processing. Finally, to help connect findings from Study 1, 2 and 3, Study 4 took a qualitative approach to identify themes related to perceptions of expertise on social media in food hypersensitivity. In doing so, considerations of both users and the infrastructure of social media platforms themselves were considered. In a similar way to Study 1, this thematic approach was considered most appropriate in helping consider overarching themes across the data. The interview approach meant that questions asked were able to more directly guide discussion in relation to the research questions and elicit responses directly from the perspective of those involved in the FH social media world (Rubin & Rubin, 2012).

Table 2  
Overview of sample, data and associated analysis for thesis studies

Study	Sample	Data	Analysis
1	Twitter users interested in FH issues – specifically the food allergen legislation	Twitter data: Tweets collected using #14Allergens and #AllergyHour Retweets and duplicates removed prior to analysis 1710 tweets in total	Thematic analysis of both hashtag samples as a whole. Process of familiarisation with data corpus, coding, second-order coding, and development of themes that appropriately describe the data
2	As above – also including those interested in the 100 chefs debate, and media sources reporting the event and related comments	News media sources reporting the 100 chefs debate (the original article and 2 subsequent articles) User comments posted online below the original article (62 comments) Various related Twitter datasets: #14Allergens – 127 tweets #AllergyHour – 228 tweets #100Chefs – 73 tweets #100CluelessChefs – 16 tweets Users interested in FH issues – 111 tweets	Qualitative analysis of frames utilised across the various sources of data – characteristic process of familiarisation and coding. Extracts used to demonstrate use of frames during process of positioning oneself and others during ensuing debates
3	FH individuals and FH parents invited to participate in survey (251). Participants recruited from previous survey contacts, and through Allergy UK and Coeliac UK recruitment campaigns	Survey data relating to: Demographic information (including FH classification) Use of social media in relation to FH issues Motivations for FH social media use (UGT perspective) Perceptions of message and source credibility, persuasiveness and intention to act upon presented Twitter content	MANOVA analyses conducted for main hypotheses: 1) to assess if there was a significant difference between FH parents and FH adults in terms of motivations for social media use (e.g., information or social preferences) 2) if there was a significant difference between low and high reaction salient individuals in terms of social media use motivations 3) if the inclusion/exclusion of a link within tweets had a significant effect on perceptions of credibility, persuasiveness and intention 4) if high or low levels of tweet likes and retweets had a significant effect on perceptions of credibility, persuasiveness and intention
4	FH individuals (4) and FH parents (4), and perceived FH experts on social media (5)	Email interview data: 13 separate transcripts produced following email exchanges encompassing several questions proposed from the interview schedule/guide	Thematic analysis of both FH individuals/parents and expert samples as a whole – analysed for overarching themes relating to FH expertise on social media



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### **Social Media as an Object of Study**

Social media can still be considered a relatively new field of research for academia. Research specifically quoting social media as the area of study has predominantly been published since 2010, often put down to the rising popularity of social networking use (Gruzd, 2015; Ngai et al., 2015). A Google Scholar search in June 2018 for article titles containing 'social media' provided 114,000 results, with 'Facebook' 84,400 and 'Twitter' 57,600. Ngai et al. (2015) summed up motives for social media research well, in that "arrival of social media has changed private lives, business operations, and relational interactions within various communities tremendously, which has led directly to the increase of academic research and studies on social media adoption" (p. 42). They emphasise that the impacts of social media need greater consideration and research, since platforms have come to play such an integral part of many people's lives.

A content analysis of social media literature conducted from 1999 to 2015 (comprising over 14,000 journal and conference papers) found research had predominately been associated with: (1) health, (2) the educational applications of social media, (3) computer science, (4) organisations and marketing, and (5) political and social engagement (Gruzd, 2015). A wealth of social media studies focus on university/college students and Facebook use. If research continues to focus attention on only one population or context there is a risk of developing a narrow view of social media uses and practices (Gruzd, 2015). Thus, the studies reported here consider social media use from an array of perspectives (e.g., varied demographics, concerns and positions). In addition, Gruzd (2015) has challenged professionals within social media research to move past focusing on tools and platforms (e.g., with health-related interventions, or marketing strategies) and take a more critical look at what social media is and how it should be researched. Psychologists must accept that what happens online is 'real', and that further examination of the affordances of social media sites, and their associated apps, is needed (Mc Mahon, 2015). What people are doing on social media has real implications for life offline, for example, in the realm of food hypersensitivity information gathered on social media may help individuals manage their health concern more successfully.

Gruzd (2015) postulates that it is perhaps the complexity of social media itself that has prevented concrete theories explaining the nature of its use, and its users. Theories utilised in social media studies often predate social media itself, and researchers may have missed opportunities to build new models for understanding this new media age. In collaboration with fellow researchers, Gruzd (2015) stresses that a potential new model for social media use would need to consider: why people adopt social media, what needs are being satisfied by social media (e.g., from community, learning, and information dimensions), what people do on social media and why (individually and collectively), as well as how social influence, trust, credibility, sense making, rumour, broadcasting and dissemination play out across platforms. The studies presented here aim to investigate these aspects of social media primarily related to use, motives, and considerations of credibility and expertise in relation to food hypersensitivity.

### **Use of Social Media Data**

Two studies in this thesis draw on naturally-occurring social media data; public posts (e.g., tweets or comments) from individual users or organisational accounts that were accessible to anyone online. Such forms of data arguably have some advantages over other kinds, such as their unsolicited nature and ease of collection. One affordance of the platform Twitter is that hashtags can be used by like-minded groups to promote a discussion, and act as an anchor to the real-time conversations. A key reason Twitter has become a commonly researched platform is due to the availability of large numbers of active users posting publicly (Ahmed, 2017). Those researching online communities have suggested that the significance of this kind of data lie in the possibility to observe growth and development of social groups and roles in a simplified research setting (Gleave et al., 2009). By investigating Twitter data via initial exploratory work reported here, a regularly occurring hashtag emerged that many active FH-concerned users were utilising for a weekly discussion hour. This hashtag acted as a weekly Twitter forum, where users could “meet” and discuss issues related to food hypersensitivity. It was expected that information within this hashtag would be very likely to contain talk centred round FH-concerns, and consequently this hashtag was included in our analysis.

The new media environment, where citizens are producers of media content, provides an opportunity to explore online communication, such as debate (O'Connor & Joffe, 2014). Online news article comments have also featured in the analysis of online FH discourse here. Twitter data is widely considered to be aligned closely to newsworthy events in real time (Petrovic et al., 2013) and to traditional media reporting (Farhi, 2009), as well as being a forum for debate and expressing opinion (Whiting & Williams, 2013). Thus, alignment of both Twitter and comments on news stories was considered highly appropriate, and this approach was taken as part of Study 2.

### **Practical Issues and Challenges**

Despite the benefits naturally produced, unbiased and real-world social media data has, use of such data is not without its challenges. We often know little about those contributing to discussions we analyse due to a lack of demographic information (e.g., age-ranges, gender, location, ethnic origin). We do know that social media users are often very engaged and information-orientated (Kuttschreuter et al., 2014), and thus may not always fully reflect typical viewpoints. We see views that have been posted on social media and are circulating among users' networks, which are available for others to use as information sources (e.g., with links to websites embedded in tweets). However, we do not have the opportunity to ask individuals to outline their thinking (as methods such as interviews or focus groups would allow).

Social media datasets can potentially contain at times thousands of individual posts from users. The ability to infer background context or meaning behind posts can be limited to some extent, for example, through limited character capacity or lack of obvious connections between posts, when compared to a more traditional qualitative analysis of interview or focus group data. Thus, additional care needs to be made when considering patterns within the data and the bigger picture during analysis. Another key consideration with collection of social media data is when to halt data capture. In terms of Twitter data, if

hashtags continue to be deployed by users on a regular basis, should they continue to be collected as data? The nature of Twitter also often means that certain hashtags may be used alongside others. This poses the question of whether to include additional hashtag samples or restrict capture in some way. In the studies that analyse Twitter data here, I sought to describe thematic relationships within and between Twitter samples. However, specific restrictions often needed to be made to make analysis manageable; these are discussed in more detail in the associated papers. In sum, this kind of qualitative social media analysis using Twitter data is very much a “work-in-progress”, and still exemplifies a form of analysis in its infancy and early development (Brooker et al., 2016).

### **Ethical Considerations in Social Media Research**

Conduct of the studies in this thesis follows research practice expected within the university’s psychology department and by the FSA, whilst adhering to guidance set out by the British Psychological Society (BPS) when implementing internet mediated research (BPS, 2013). In relation to online research, researchers need to consider the extent to which a source of online data can be thought of as being within a private or public domain (Coulson, 2015). Historically, research conducted in public domains, for example, through naturalistic observation, has been seen as acceptable if persons would expect to be observed (BPS, 2014). The question lies as to whether specific forms of online or social media data should be considered public and observable. Social media platforms often centre on the notion of public displays, for instance, posting updates, news, images, videos, opinions, or polls. However, sites such as Facebook that incorporate both a public (e.g., with use of Facebook groups) and private (friends only networks) can blur the boundaries in terms of what kinds of data might be acceptable for online researchers to observe. Most social media platforms now have the option for users to make their accounts and content private, whilst still being able to view the information shared by other non-private accounts.

Twitter and news comments platforms (such as those that follow online news articles) are widely considered to be an arena for public discourse and debate, and due to their “open access” nature, informed consent was not obtained from any of the users quoted in this report. Users of these sites are reminded of their public nature through the unrestricted process of retweeting, liking, and commenting which may come from any online user (Krotoski, 2012). Moreover, use of hashtags, which are explicitly used to give a tweet public attention, further highlights this awareness. Twitter specifically provides data for the purposes of research. Thus, this research was in line with their terms and conditions, whereby obtaining consent would not be expected for reported public Twitter posts. However, additional precautions were taken in line with BPS (2013) recommendations. Anonymity of users was achieved by not referencing any specific username, full name, affiliation or geo-location of individuals. To prevent traceability of tweets and comments (e.g., through search engines such as Google) paraphrased quotes were used throughout subsequent results sections. Ethical approval was granted for this research by the University of Bath’s ethics committee (see Appendix A for confirmations): Studies 1 and 2 (ref. 15-088), Study 3 (ref. 16-275), and Study 4 (ref. 16-146).

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## CHAPTER RATIONALE - STUDY 1

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New UK food allergen legislation planned for release in December 2014 (European Commission, 2014) provided an opportunity to observe FH discourse on Twitter in real-time, and through what could be a significant event for many FH individuals and associated organisations and businesses. The following chapter introduces an exploratory qualitative study (Study 1), which aimed to understand how, where and with whom FH information was sought and exchanged on Twitter. This study provided a benchmark for testing methodological approaches to analysing Twitter data in a qualitative manner, with implications for the field as well as proceeding data analyses conducted during this thesis. The study adopted a thematic approach in the development of themes across the data (Braun & Clarke, 2006, 2013), while utilising a Twitter data analytics suite to collect and familiarise oneself with tweet data (see Brooker et al., 2016). One way connections are made on Twitter is via hashtags. These tags anchor individual posts to specific conversations/feeds, so individual tweets containing a specific hashtag can all be accessed in one place. Study 1 utilised methods that collected two forms of Twitter hashtag, one used to promote food allergen legislation, and the other utilised for a weekly food allergy discussion. This approach provided insights into the kinds of communication and variety of users taking to Twitter to discuss FH issues around the time of the legislation release.

Much FH research has centred on quality of life and coping. This literature has provided vital insights into living with or caring for someone with food hypersensitivity (Cummings et al., 2010; King et al., 2009; Knibb, Barnes, & Stalker, 2016; Sampson et al., 2006; Valentine & Knibb, 2011). This study takes a slightly different path in observing real-time, unsolicited and natural communication around FH issues. From this approach I hoped to identify some of the potential ways social media was being used to assist in the management of food hypersensitivity (e.g., social support, information and advice seeking), therefore providing additional insights afforded by previous FH literature. At the time of conducting this study, I was not aware of any research that had attempted to explore Twitter use by the FH community. A small amount of research had explored the benefits of online support groups in this area (e.g., Coulson & Knibb, 2007) and suggested potential use of social media for FH concerns (Begen et al., 2016; Broome et al., 2015). However, further work was needed to more thoroughly map this FH social media landscape, starting with Twitter. I utilised perspectives from research into use of the internet (and social media) for health-related reasons (e.g., Lin et al., 2016; Regan, Shan, et al., 2014; Seale, Ziebland, & Charteris-Black, 2006; Sudau et al., 2014), and literature around organisation-public

interaction on Twitter (e.g., Panagiotopoulos et al., 2016; Panagiotopoulos et al., 2014; Shan et al., 2015) to delineate findings from this study.

Study 1 is presented as a draft manuscript, and provides an early exploration and framework for the subsequent published and under-review papers presented in this thesis. It is likely that this paper will be submitted to the *Journal of Health Communication* soon. Supplementary chapter rationale sections will be provided between the remaining study papers, to provide a bridge across the approaches and topic foci (as recommended for an alternative thesis format.) Due to the alternative thesis format, some repetition of literature and points across the empirical studies will be evident. Each study takes the form of a separate journal article, and therefore needed to set the scene for each distinct readership. Thus, some literature may be developed further or appear novel in the included study papers when compared to the broader literature review presented in Chapter 2. Finally, due to disparities in formatting guidelines for the journals that papers have been submitted to or published within, referencing styles may vary. However, all other thesis chapters conform to APA referencing style, and references from these chapters are presented at the end of the thesis in the typical format.

### Statement of Authorship

This declaration concerns the article entitled:									
Doing food hypersensitivity on Twitter: A qualitative exploration of tweets following the release of food allergen legislation									
Publication status:									
Draft Manuscript	X	Submitted		In review		Accepted		Published	
Publication details (reference)	Hamshaw, R. J. T., Barnett, J., Gavin, J. & Lucas, J. S. (2018). Doing food hypersensitivity on Twitter: A qualitative exploration of tweets following the release of food allergen legislation. <i>Draft Manuscript</i> .								
Candidate's contribution to the paper (detailed, and also given as a percentage)	Richard Hamshaw made considerable contributions to the conception of the study (90%), as well as the methodological design (90%). The research process, including the acquisition of and analysis of data was predominantly conducted by Richard (90%). Richard also primarily executed the presentation of the study and associated data in journal format (80%), and presented associated content at academic conferences.								
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.								
Signed						Date	29/08/2018		



**Doing food hypersensitivity on Twitter: A qualitative exploration of tweets following the release of food allergen legislation**

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### **Abstract**

This study reports findings from a qualitative analysis of Twitter data collected before, during, and after the implementation of Food Information Regulations relating to food allergen information provision in the UK. The study aimed to investigate Twitter activity associated with food hypersensitivity and how this related to the affordances of Twitter. By utilising the regulations release, issues that became a focus of attention and the Twitter practices of FH individuals and organisations could be explored. Utilising hashtag and Twitter discussion forum data, tweets were collected between December 2014 and February 2015. These two data collection approaches allowed for consideration of a wider sample, with the inclusion and consideration of different sections of the FH Twitter landscape. Investigation of Twitter communication within the food hypersensitive community highlighted how different individuals, groups, and organisations seek and exchange information via Twitter e.g., simply posting information, requesting information, or calling-out other users or accounts on an issue. A thematic analysis highlighted that individual users and organisations did this in three areas: 1) mobilising users, 2) seeking and showing evidence for impact, and 3) seeking accountability. The analysis highlighted information of relevance to stakeholders involved in the support of food hypersensitivity.

**Keywords:** food hypersensitivity, social media, Twitter, qualitative, thematic analysis



## Background

Social media gives both individual users and organisations access to information easily, quickly and in real-time. Kietzmann, Hermkens, McCarthy, and Silvestre (2011) highlight seven constructs that allow us to make sense of how social media functionality is organised: facilitating 1) identity, 2) conversations, 3) sharing, 4) presence, 5) relationships, 6) reputation, and 7) groups. Although not always present in all platforms, these functions highlight common social practices on social media – communicating with others, sharing information, establishing groups, and forming opinions of others. Uses and Gratifications Theory (UGT) is one theoretical approach that has recently been applied to media use. It assumes that certain needs can be satisfied by media – users are gratified when their needs are met by particular media sources (Katz, Blumler, & Gurevitch, 1973). UGT sees individuals as active media users not simply a passive audience. More recently, research has applied UGT to social media (Chen, 2011; Johnson & Yang, 2009; Sundar & Limperos, 2013; Whiting & Williams, 2013). Sundar and Limperos (2013) note that social media can have both a social and information function for users; acting as a resource to gather useful information, news or advice, as well as maintaining relationship ties (Ellison, Vitak, Gray, & Lampe, 2014; Kuttschreuter et al., 2014; Sundar & Limperos, 2013). Social media can foster connections when in need of emotional support (Stephens & Malone, 2009), and provide collective support within communities (Rains, Brunner, & Oman, 2015; Sutton, Palen, & Shklovski, 2008).

One way that connections are made on the social media platform Twitter is via hashtags. These tags anchor individual posts “tweets” to specific conversations/feeds, so individual posts containing a specific hashtag can all be accessed in one place. Twitter allows users to access real-time news and updates from accounts they follow (e.g., celebrities, news sites, organisations, and friends), as well as post updates themselves (tweeting) or share information (retweeting). Twitter has been consistently one of the top three social media platforms utilised in the UK (Revive Digital, 2018; Rose, 2017), and in terms of active/engaged users it takes second place behind social media giant Facebook (Rose, 2018). Twitter has become a prominently researched social media site due to the public and accessible nature of the platform’s data and access to a large number of active users (Ahmed, 2017). More broadly, public affordances of social media platforms can provide new benefits and resources for individual users, for example, in overcoming limitations with face-to-face interaction; giving access to other perspectives not necessarily available in the offline world (Zhao et al., 2008).

One particular domain around which social media platforms have become a popular location for seeking and sharing information and experiences is health (Lin, Zhang, Song, & Omori, 2016; Regan et al., 2014; Sudau et al., 2014). Building on the earlier growth of support forums (see Seale, Ziebland, & Charteris-Black, 2006), groups of health-concerned users now also interact on social media, utilising platforms to share useful information and emotional support about specific conditions e.g., people living with cystic fibrosis via Twitter (Brooker, Barnett, Cribbin, Lang, & Martin, 2014) and diabetic individuals via Facebook

(Greene, Choudhry, Kilabuk, & Shrank, 2010). This study considers the use of social media by individuals who have to manage their health and safety through the avoidance of certain foods, those with food hypersensitivity.

Food hypersensitivity occurs in people who suffer reproducible adverse symptoms when eating specific foods, and denotes both food allergy and non-allergic food hypersensitivity, for instance, food intolerance and coeliac disease (Johansson et al., 2008). Due to the need to avoid specific food allergens, food hypersensitive (FH) individuals regularly encounter challenges when eating out; often feeling they need to pre-plan and research venues and menus (Avery, King, Knight, & Hourihane, 2003; Cummings, Knibb, King, & Lucas, 2010). However, recent legislation now provides a new set of practices required by food retailers that will support the decision making of food hypersensitive consumers. Retailers are now required to provide customers with ingredients information relating to 14 main food allergens, which include: celery, cereals containing gluten (e.g., wheat, rye, barley, and oats), crustaceans (e.g., crab, lobster, prawns), eggs, fish, lupin (lupin flour and seeds), milk, molluscs (e.g., mussels and squid), mustard, tree nuts (namely almonds, hazelnuts, walnuts, cashews, pecans, brazils, pistachios, macadamia nuts or Queensland nuts), peanuts, sesame, soya, and sulphur dioxide (found in dried fruits, as well as drinks). These regulations bring food labelling into a single legal framework which simplifies and consolidates existing labelling law, e.g., combining requirements for meat origin labelling, minimal text size, as well as nutritional and allergen information (European Commission, 2014). The Food Information Regulations (FIR) contains national measures and provisions on the enforcement of this European legislation in the UK. The regulations specify that allergen information should be provided for both packaged and non-prepacked food, including food served in restaurants, cafes, take-out facilities and other places where food is served such as schools, hospitals, and airlines. Eating out establishments have discretion over how this information is provided; it could be through written information on signs and menus, or provided by staff (Food Standards Agency, 2013).

Many organisations now utilise social media to help support and reach out to specific communities (Rutsaert et al., 2014; Shan et al., 2015). In terms of food hypersensitivity, several organisations utilise multiple social media platforms to help support those living with hypersensitivities and their families (e.g., Allergy UK, Anaphylaxis Campaign, Coeliac UK, and the Food Standards Agency). These organisations respond to consumer queries, post useful information about living with specific conditions, signpost users to local support groups, raise awareness and post urgent food product recalls, e.g., if products have been mislabelled and pose a danger to consumers (Kuttschreuter et al., 2014; Shan et al., 2015). In terms of real-time updates and announcements, Twitter is often the platform chosen for organisation-consumer communication (Panagiotopoulos, Barnett, Bigdeli, & Sams, 2016; Panagiotopoulos, Bigdeli, & Sams, 2014). The release of the new allergen legislation, planned awareness campaigns on Twitter, and expected organisational use of the platform, provided a useful opportunity and lens to explore use of social media from the user and organisational perspective in relation to food hypersensitivity.

## Research Aims

The aim of this study was to establish the nature of Twitter activity associated with users who are interested in food hypersensitivity. Specifically, we focused on tweets related to the FIR to identify (a) the preferences and practices of FH-concerned individuals and organisations, and (b) how and with whom FH information is sought and exchanged.

## Method

There were two approaches to data collection utilised during this investigation: 'hashtag following', and 'group discussion participation'. These allowed for the inclusion and consideration of different sections of the FH Twitter landscape: those adopting specific allergen-related hashtags in individual tweets, and the tweets exchanged in a regular Twitter discussion around allergy. All data were collected between 1<sup>st</sup> December 2014 and the end of February 2015 using Chorus Analytics<sup>4</sup>. Steps taken in developing and refining the tweet dataset are presented in Table 1.

### Hashtag Following

The Food Standards Agency (FSA) conducted a Thunderclap<sup>5</sup> campaign to broadcast information about the new regulations which used the hashtag #14Allergens. All tweets including #14allergens were collected and a transcript of #14Allergens tweets was produced after removing retweets (i.e., exact copies of the same tweet).

### Group Discussion Participation

Allergy Hour is a weekly Twitter discussion forum that meets at the same time each week to discuss FH-related issues. The hashtag #AllergyHour is used to identify all contributions to the discussion. On occasions a high-profile guest is invited to respond to the questions of the community. At the time of data collection these included key stakeholders around the FIR, e.g., from the FSA, and Anaphylaxis Campaign. The majority of #AllergyHour conversation was planned around discussing the new allergen rules e.g., may contain labelling, and eating out post-legislation. Tweets discussing the legislation in #AllergyHour would not necessarily include #14Allergens.

## Analyses

Tweets were analysed using a thematic analysis, following guidelines proposed by Braun and Clarke (2013). Early analysis featured familiarisation with dataset through reading and noting initial thoughts, and development of initial codes through annotation of interesting elements/topics. First order codes were reviewed in order to group them into broader themes. Final themes were reviewed and refined to ensure they appropriately explained their content and covered as much of the dataset as possible.

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<sup>4</sup> Chorus Analytics is a Twitter data harvesting and analytics suite. Researchers can utilise Twitter programming interfaces to retrieve quantitative statistics (e.g., tweet-volume and sentiment), as well as qualitative data (e.g., written tweets and attached links). Chorus facilitates data collection through keyword searches and user timeline data (Brooker et al., 2014).

<sup>5</sup> Thunderclap ([www.thunderclap.it](http://www.thunderclap.it)) is a crowd-speaking platform that helps promote a message through Twitter, Facebook, or Tumblr via users signed up to the thunderclap. The FSA used the following Thunderclap post – “Allergies are life changing and can be fatal. Help raise awareness of the new allergen rules. #14Allergens”.

Table 1

*Overview of steps taken in developing and refining the tweet dataset*

Dataset	Original description	Data treatment	Final description
#14Allergens	<ul style="list-style-type: none"> <li>• 4239 tweets mentioned #14Allergens</li> <li>• 326 tweets were Thunderclap duplicates</li> <li>• There were 2351 retweets</li> </ul>	<ul style="list-style-type: none"> <li>• Thunderclap duplicates removed</li> <li>• Retweets removed</li> </ul>	Dataset consisted of 1562 original tweets using the #14Allergens hashtag.
#AllergyHour	<ul style="list-style-type: none"> <li>• 3412 tweets mentioned #AllergyHour</li> <li>• 1530 retweets</li> <li>• 159 tweets during planned discussion following legislation release (0 retweets and 5 #14Allergens mentions)</li> </ul>	<ul style="list-style-type: none"> <li>• Planned #AllergyHour discussion following legislation release selected for focus</li> <li>• No retweets present</li> <li>• Mentions of #14Allergens removed to avoid duplicates in overall dataset – resulting in 148 tweets</li> </ul>	Final data 148 original tweets during #AllergyHour following legislation release
Final Dataset		Final datasets were incorporated from both samples #14Allergens and #AllergyHour.	1710 original tweets from both #14Allergens, and #AllergyHour (post legislation release).

## Thematic Analysis

Three main themes were identified: 1) mobilisation around the legislation, 2) seeking and evidencing impact through Twitter, and 3) seeking accountability.

### 1. Mobilisation around the Legislation

Many tweets within the #14Allergens discussion centred around mobilisation in relation to the new regulations – getting individual users to spread the word, to generate interest in the topic, and let people know their rights when eating-out. Stakeholders such as food allergy agencies or food-allergy training providers were keen to promote the key messages of the new legislation. Some posts also sought to rally users to take part in the Thunderclap broadcast, others directed users to the #14Allergens directly for information:

*“New food rules mean businesses must inform customers of #14Allergens in food sold. Are you prepared?”*

*“Don’t forget to sign up to the @foodgov’s Thunderclap to help raise awareness of the new #14Allergens food labelling rules”*

*“You have a right to ask and be answered about information on #14Allergens in food venues”*

*“From 13<sup>th</sup> Dec restaurants, cafes & caterers need to provide information about allergens. Find out more at #14Allergens”*

Organisations, charities, and training providers were active in sharing information about the new allergen rules as well as rallying support through, and directing attention to, the 14 allergens hashtag. Tweets were also calling for action – “are you prepared”, “find out more”, “sign up”. Many of these tweets appear early in the dataset as both a way of notifying users of the new regulations and proliferating the use of #14Allergens as a vehicle for the topic on Twitter. Tweets associated with mobilisation did not only originate from organisational accounts; individual users too mobilised support through sharing useful information and inviting contributions. Such tweets were primarily seen in the #14Allergens dataset:

*“Let’s remember to praise food businesses doing well with their #14Allergens”*

*“The new #14Allergens law, so who’s getting it right so far?”*

*“I’ve linked to this in my blog – the info page on #14allergens is excellent, especially for GF oats!”*

Individual users were sharing information and rallying further involvement and action on Twitter in association with the organisational accounts. Following the early FSA posts containing #14Allergens, its subsequent proliferation and use by both individuals and organisations suggests that early attempts to mobilise users via larger organisations were successful as individuals responded by engaging with the discussion and inviting engagement around the impact of the FIR. Interestingly, there were few mobilisation focused tweets in #AllergyHour exchanges. This is not to say that individuals who posted mobilising tweets using #14Allergens were not participants in #AllergyHour – in fact, there were examples throughout the data where individual users posted exclusively using #14Allergens and also participated in #AllergyHour discussion. The Allergy Hour hashtag appeared to be utilised for different reasons; participants here may be seen to adjust their tweeting behaviour to align with expected practices of a discussion forum, where it is

assumed there is already some degree of common understanding amongst participations. Thus, it may be inappropriate or unnecessary to issue a rallying cry and more fitting to discuss experiences. The #AllergyHour data highlighted that users participated in this weekly Twitter-discussion to seek and share useful information relating to food sensitivities and, at the time of the legislation release, discuss concerns and queries relating to implementation.

## 2. Seeking and Evidencing Impact through Twitter

Users also deployed #14Allergens, and to some extent #AllergyHour, as a way of 1) seeking information about the legislation's impact, and 2) to demonstrate the impact of the legislation itself.

**Seeking evidence of impact.** Following the release of the new regulations, support groups and stakeholders sought information about the impact of the FIR from the FH Twitter community. Stakeholders appeared eager to gain positive feedback from consumers. People typically take to public platforms like Twitter to complain and vent frustration, rather than praise, and issuing invitations to provide examples of positive experiences was perhaps to offset this tendency and solicit success stories where they might not naturally be forthcoming:

*"Please let us know your #14Allergens success stories if you're eating out over the weekend!"*

*"Have you seen a change in #restaurants declaring the #14Allergens in dishes?"*

*"There must be venues doing positive stuff out there #14Allergens. Can anyone give me a good news story?"*

*"#AllergyHour - The FSA are looking for #foodallergy experiences to support #14Allergens awareness throughout local media"*

Training providers enquired about the ease with which businesses had implemented the regulations. This perhaps operated as a means to engage with possible clients, to gather information on how previous client organisations were managing, or to understand how they could support businesses in the future:

*"Please let us know your thoughts on new #14Allergens #food regs? It is easy to stay compliant?"*

*"How do you feel about #14Allergens rules? What are your thoughts on the impact for both chefs & customers? #eatingout"*

Thus, Twitter was utilised to seek evidence for the impact of the regulations from the perspective of both the consumer and business. Consumer-orientated tweets requested positive examples and evidence for change (i.e., was allergen information being provided). Business-directed tweets centred on how businesses felt in implementing the regulations, what their impact would be, and whether they could stay compliant.

**Demonstrating evidence of impact.** In addition to seeking information relating to the legislation's impact, individual users also specifically highlighted examples where the regulations had influenced their eating-out experiences. Both #14Allergens and #AllergyHour were used in tweets praising the FIR and highlighting some of the venues

where the legislation had been appropriately implemented, for instance, with menu information and evidence of staff training:

*“Feeling supported. Daughter's school have told me they will cater for her #coeliac disease today #schoolfood #14Allergens”*

*“@[A Restaurant] Attentive staff with my #dairyfree meal today - no #14Allergens menu yet though”*

*“Glad to see @[A Restaurant Chain] taking the #14Allergens regs seriously – folder provided & staff attentive”*

*“#AllergyHour - I've had a very positive experience of eating out with #allergies recently, and one very happy son! @Restaurant Chain”*

As part of these tweets, some users also employed additional FH-related hashtags (e.g., #dairyfree and #coeliac) that highlighted the particular allergen of concern, demonstrating evidence of impact more specifically. This identification of specific forms of food hypersensitivity could have enabled further spread of information relating to the regulations, since other networks following these hashtags could have learned about the legislation if not already aware. As highlighted in the first theme, such an approach may also mobilise additional users on Twitter around the legislation who had specific allergen-concerns.

Other tweets posted by individuals and commercial training providers drew attention to evidence of limited uptake of the FIR:

*“Worryingly around 2 thirds of businesses we spoke to last week about training were not aware of the new #14Allergens laws”*

*“Seems the local council has dramatically failed in informing local businesses about #14Allergens”*

*“I hope we start looking at the positives soon, but need to remember its baby steps for most businesses at first #AllergyHour”*

This theme demonstrates how individual and organisational accounts were used to make and solicit claims around the evidence around the implementation of the new FIR. The tone of these tweets was primarily positive, whilst many of those that were negative acknowledged it was early days. The key tenets of the FIR were not questioned, rather the focus was on evidence of uptake of the regulations.

### 3. Seeking Accountability

Finally tweets linking to the FIR were used as a way of seeking to locate accountability around the changes in labelling and restaurant practices that the legislation required. Tweeting practices suggested that individuals were seeking to develop and test expectations as to who was responsible and who could reasonably be held to account. Relatedly, individual users sought the legitimacy of allergy related issues that were more tangential to FIR by piggybacking them on the #14Allergens and #AllergyHour hashtags to promote and legitimise these adjacent agendas.

**Holding others to account.** Tweets posted about the legislation often related to what consumers might legitimately expect of businesses in respect of the FIR and what they should do if these expectations were not met. Tweets were directed towards food retailers themselves, whom the consumer wished to question, or to FH-related organisations. By using #14Allergens or #AllergyHour, these users were anchoring their concerns to the

appropriate Twitter constituency, increasing the probability other like-minded users would see it. As illustrated below, directly tagging particular accounts within a tweet further heightens the challenge and embody a sense of particular parties being held to account:

*“What should we do if we encounter businesses not complying with rules, or that says food has all allergens in to cover their backs? #AllergyHour”*

*“If takeaways offer online & phone ordering, then can allergen info be listed online only, or might you have to ring to ask? #14Allergens”#*

*“@foodgov should these @[Supermarket] bread rolls say may contain allergens or do #14Allergens need to be declared? Staff had no idea #help”*

*“ @[Supermarket] is it okay that there is no #14Allergens info or allergen ingredients info for this product?”*

*@[FSA Official] what should someone who has #allergies do if they have a reaction to food when they are eating out now? #AllergyHour #14Allergens*

Tweets were not specifically complaining here, but querying concerns in relation to the legislation such as what to do if businesses were not complying, how long before consumers could expect to see change, or how certain businesses needed to provide details (e.g., with takeaway outlets). Individual users were trying to identify how to hold businesses to account but were also seen to support organisational action. It appeared that those participating in #14Allergens and #AllergyHour discussions on these issues were eager to learn how they could strengthen the success of the regulations and ensure their correct implementation.

**Promoting adjacent agendas.** One recurrent issue often associated with the legislation but actually falling outside of it, was “may contain” or blanket allergen labelling. Customers seeking FH products are sometimes met with labelling that states all allergens (or several) may be present in a food product, even if that product is typically unlikely to contain some of the allergens listed. Food choices may be limited when products are labelled with variants of the may contain message as consumers may not want to take the risk that products may *not* contain the specific allergen. Both #14Allergens and #AllergyHour were used to promote this issue:

*“What about supermarkets using catch all 'may contain' signs? Do the new regs allow this, and if not what can we do? #AllergyHour”*

*“Food providers can't just slap 'may contain' statements on everything! That won't help anyone! #14Allergens”*

*“#Allergyhour - I think the huge level of may contain labelling is causing people to take risks in order to experience a more regular choice of products”*

*“How can we stop the blanket 'may contain' con? Apart from social media action by us at #AllergyHour?!”*

The nature of this user activity also links with the mobilisation theme, for example, one #AllergyHour participant suggests something may be able to be done about use of blanket may contain labelling by the participants of Allergy Hour. The legislation discussion on Twitter and use associated of hashtags like #14Allergens thus provides FH users an opportunity to bring this issue to the fore, even though may contain labelling is not related to the new regulations.

The FIR provides an opportunity for issues other than may contain labelling, that are tangential rather than core to the legislation, to be brought to the fore. For example,



individuals took issue with different varieties of nuts being categorised together despite many nut-allergic individuals only being allergic to certain tree nuts. Another example was the exclusion of allergens that may provoke allergic reactions more commonly than the 14 allergens – from the range of the legislation:

*“With nut #allergies one size does not fit all! #14Allergens #compliant #eatingout”*

*“I certainly know of more people that are allergic to strawberries than wheat! #14Allergens”*

Thus members of the FH Twitter community were highlighting potential concerns with the legislation and calling-out some associated authorities on them. Users employed associated hashtags as a vehicle for promotion of related issues; comments also alluded to the need to take action (e.g., “what can we do ...” and “how can we stop ...”). Through promotion of specific agendas, calls for action, and identification of related FH issues, we begin to see a knowledgeable and united FH community on Twitter.

## Discussion

This study explored Twitter activity surrounding new food allergen regulations before, during, and after their implementation. The aim of this was to understand how, where and with whom FH information is sought and exchanged on Twitter. The qualitative analysis identified three themes. Firstly, organisations and stakeholders sought to mobilise individual Twitter users to spread the word about the key messages of the FIR and to generate interest in the topic by, for example, rallying users to take part in the Thunderclap broadcast. Secondly, stakeholders sought to persuade individual users to share information specifically about the legislation’s impact (e.g., whether it had changed their eating-out experiences), but also targeted businesses recognising their ability to implement necessary changes. Individual users themselves demonstrated the impact of the FIR by providing positive examples of related experiences as well as highlighting the ‘in principle’ benefits of the legislation. However, examples were also quoted where businesses appeared to be relatively naïve about the legislation, for instance, when consumers had asked about allergens while eating out. Thirdly, with regard to accountability, consumers posted queries about the FIR, and utilised both hashtags and account tagging as a means to anchor concerns increase the likelihood of finding an audience and enabling their responses. FH-concerned users were developing expectations in relation to the FIR and seeking who to hold to account. Discussion surrounding the legislation was also used in order to promote and legitimise agendas related to (but not covered by) the FIR (e.g., may contain labelling). Themes highlighted concerns felt by consumers and businesses in relation to the FIR, providing information of importance to FH stakeholders (e.g., agencies, charities, and training providers). Furthermore, exploration of communication within the FH community illustrated how Twitter can be utilised for different agendas by both individual and larger organisational accounts, such as seeking and sharing information, calling-out individuals and utilising hashtags to anchor topics and discussions.

Disseminating information and spreading the word about the FIR via Twitter was a key strategy employed by FH stakeholders. Organisations such as the FSA, were

encouraging what Kietzmann and Canhoto (2013) term 'electronic word of mouth'. Strategies such as the Thunderclap broadcast were a way of initiating this, and demonstrate recent advances in citizen and government collaboration on social media (Panagiotopoulos et al., 2014; Van De Velde, Meijer, & Homburg, 2015). Organisational accounts were able to rally individual users to post about the FIR, and through the creation of a specific hashtag (#14Allergens) to anchor discussion to a single Twitter locale, associated content could seemingly be managed and disseminated further. Strategies, such as the Thunderclap, can prove valuable in raising awareness via Twitter (Gough et al., 2017). However, this will only reach a specific population; those using the platform at that specific time and at least partly unified in their networks (by following specific related hashtags or others that do). The Thunderclap had a large number of Twitter users involved, and got information about the FIR out to thousands of users once the post was retweeted. Although it is difficult to know the impact this approach had on later discussion around the regulations, the promotion of an official hashtag (such as #14Allergens) is likely to have facilitated debate and made associated information more accessible, intensifying attention around the issue and increasing the chance of relevant posts being retweeted (Van De Velde et al., 2015). Furthermore, bringing FH-concerned Twitter users together via this shared announcement may have solidified action by users, since individuals would have become aware of other users sharing similar concerns and experiences (Choi & Park, 2014; Graham, Jackson, & Wright, 2016).

On the other hand, the specific affordances of Twitter (at the time the character limit was 140 characters) affect how users communicate, and may exclude the inclusion of certain pieces of information that may have been able to anchor tweets into wider networks (e.g., using additional hashtags). Within #AllergyHour we see a limited number of additional hashtags used, but tweets were often original and specific (e.g., related to certain FH topic). The #14Allergens dataset was characterised by a high level of retweets, which may demonstrate a predominately broadcasting function; a more conversational hashtag was seen in #AllergyHour. This illustrates the varying functions of Twitter hashtags, and highlights how users adjust their behaviour to fit the expected practice of these hashtags, linking with research showing users adjust their behaviour according to their social media environment (Hall, Grogan, & Gough, 2016; Sudau et al., 2014).

Within the FH Twitter population here, we see individuals sharing and producing information and discussion online, as opposed to purely observing it, in-line with typical research on contemporary social media use (Kietzmann et al., 2011). Tweets are constructed that request specific information from followers and the wider community (if users are following related hashtags), and tag other involved parties, such as FH stakeholders and organisations. Stakeholder requests for positive experiences relating to the FIR challenged the typical use of public social media platforms such as Twitter which are often more associated with venting frustrations (Kietzmann & Canhoto, 2013; Leung, 2013). Other tweets were related to queries and concerns, suggesting users are employing Twitter as an additional information source in the management of their food hypersensitivity

since tweets called for additional advice surrounding the regulations (Kuttschreuter et al., 2014). Some examples within the data alluded to a modest awareness of the FIR; individuals tweeted about staff not being aware of new schemes, and training providers highlighted the low level of awareness from businesses they had been in contact with. Both consumer and business perspectives were sought in relation to impact, and typifies an approach almost certainly intended to promote further legislation dissemination. When considering #AllergyHour, Twitter not only served an informational purpose for users, it also appeared to help maintain social connection with others in similar circumstances. #AllergyHour members considered themselves as one community, with quotes like “How can we stop the blanket 'may contain' con? Apart from social media action by us at #AllergyHour?!”. This is in line with findings that have shown that FH individuals develop a sense of belonging when interacting with other FH individuals (Barnett & Vasileiou, 2014). Moreover, observations suggesting satisfaction of informational needs (e.g., through #14Allergens) and social needs (through #AllergyHour) are consistent with findings relating to UGT and gratifications for use of Twitter and other social media; that these platforms are primarily used to gain information and interact with other users (Chen, 2011; Johnson & Yang, 2009; Sundar & Limperos, 2013).

The FIR are likely to benefit FH individuals when eating out or when purchasing prepacked products. However, evidence here suggested that some FH Twitter users were still anxious about how they would obtain allergen information. Individual users sought accountability in relation to this issue by tweeting queries via #14Allergens and #AllergyHour and also tagged relevant stakeholders in posts. Kietzmann and Canhoto (2013) note how consumers not only accept that organisations monitor social media activity in relation to their role, but expect organisations to be present across channels. Consumers now have the power to pull larger social media accounts into discussion, and this was being exercised in the FH user's pursuits of accountability. Moreover, the potential for individuals to propose adjacent agendas was seen in the discussion of may contain labelling. Individual users were seen to utilise discussion of the regulations as a vehicle for possible change in relation to this issue. This finding links with Fellenor et al.'s (2017) notion of ‘piggybacking’ on Twitter, where information is customised in-line with group or individual interests. A main story or issue was appropriated to direct attention to another related interest. FH users suggested that action from #AllergyHour members on social media may be able to bring about change. Such an approach is seen in political literature, where individuals propose action for public good as opposed to simply a personal concern (Graham et al., 2016). This is seen here in examples where FH users highlight the risks FH individuals might take in consuming food labelled with may contain statements. Spaces like #AllergyHour may be seen as spaces to organise action, similarly to how online forums have been utilised to draft petitions and write to politicians and associated stakeholders (Graham et al., 2016).

A strength of the study approach was how FH discourse relating to user opinions and experiences were sought through different hashtags and across a longer time-frame (when compared to one-off focus groups or interviews). The focus on the FIR and

associated hashtags was limited in scope, but it is important to be aware of the challenges that such a vast data environment like Twitter can pose. Restrictions were needed to ensure a manageable dataset that still provided acceptable depth and breadth of discourse surrounding the issue; the FIR release provided an ideal venue for exploration of FH communication on Twitter. Other social media platforms (e.g., Facebook and forums) are utilised for FH issues (Hamshaw, Barnett, & Lucas, 2018), and these may highlight different insights. Furthermore, despite qualitative research taking into account the complexity of human everyday experience, often from natural surroundings (Lewis & Ritchie, 2003); the limited length of tweets potentially reduces this depth, and additionally poses challenges in terms of analysing discourse (e.g., context, source, and originality). Nevertheless, capturing substantial Twitter discourse rooted in real-time natural occurrences may provide insights similar to other FH individuals. This was seen as a key advantage, and may help challenge typical arguments relating to generalising qualitative findings to the wider population (Larsson, 2009).

### **Conclusion**

This study has demonstrated some of the ways FH-concerned users employ Twitter in promoting and discussing FH issues. In exploring themes that arose within tweet data across the release of food allergen legislation, this study has shown how hashtags can be employed to broadcast information to a wider audience, anchor discussion in one location, or facilitate regular specific discussion of a shared interest. The study has also shown how users can call-out or draw-in other Twitter users or accounts to endorse an issue and encourage the likelihood of a response. #AllergyHour discussions illustrates a group of like-minded FH-concerned users interacting on Twitter, who possess shared goals and a similar commitment to maximising seeking and sharing relevant information about the implementation of the FIR. Findings also highlighted some concerns in relation to the FIR, such as information provision, dissemination and the issue of blanket may contain labelling, all of which are likely to be of note to policy makers such as the FSA. Future research would do well to explore the community support aspect of Twitter in the realm of food hypersensitivity: who do users turn to, what information or experience is valued, and what methods are employed to assess the information and authors on social media? Platforms such as Twitter can offer a lot to those living with a health concern like food hypersensitivity, but with the accuracy of information being potentially vital to one's health, research must explore how information on social media is assessed.

### **Abbreviations**

FH: food hypersensitive

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## CHAPTER RATIONALE - STUDY 2

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In Chapter 4 (Study 1) I investigated use of Twitter in relation to FH concerns, as directed by the release of related food allergen legislation. The qualitative analysis identified themes in relation to mobilising users to spread the word, sharing information to demonstrate the legislation's perceived impact, and seeking accountability and promoting related agendas. Exploration of communication within the FH community illustrated how Twitter can be utilised for different agendas by both individual and organisational accounts, such as seeking and sharing information, calling-out individuals and utilising hashtags to anchor topics and discussions. #AllergyHour discussion revealed a group of like-minded FH-concerned users interacting on Twitter, who appeared to possess shared goals and attitudes. Not long after the release of the FIR, another opportunity arose to explore FH issues on social media. This formed the basis for Study 2.

The Daily Telegraph published a letter and an article in March 2015 endorsed by 100 chefs criticising the FIR (Dominiczak, 2015). Following this, many FH-concerned consumers turned to social media to share their views on the issue. Qualitative data from the news article online comments and associated tweets were collected. The study aimed to explore how claimants positioned themselves and others in the ensuing online debate, and how the debate itself was framed. Data analysed also included online news articles reporting on the debate. Positioning Theory was utilised to illustrate how user-positions can be defined, redefined, and challenged in the light of new or varying information. To my knowledge, this was the first study of its kind to employ Positioning Theory to help describe negotiations of roles and rights via social media. This study also considered FH consumer concerns and challenges faced in relation to their health-risk management strategies, through investigation of a debate that threatens their rights and identity as someone with a salient health issue. In doing so, this paper draws on additional risk literature. An inductive qualitative approach was used to identify frames within the debate discourse and positions taken on each of the frames. This analytic approach was in-line with traditional thematic analysis (Braun & Clarke, 2006, 2013), but in considering frames and positions I additionally considered symbolic devices such as biases, ideologies and emphasis within the data (Gamson & Modigliani, 1989; Hertog & McLeod, 2001; Streeter, 2009). Furthermore, due to the associated journal readership and additional focus on news media and debate, terminology and reflections relating to analysis of frames, as opposed to purely themes, was considered more appropriate when outlining the subsequent analysis.

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Candidate's contribution to the paper (detailed, and also given as a percentage)	Richard Hamshaw made considerable contributions to the conception of the study (80%), as well as the methodological design (80%). The research process, including the acquisition of and analysis of data was predominantly conducted by Richard (90%). Richard also primarily executed the presentation of the study and associated data in journal format (80%), and presented associated content at national and international academic conferences.								
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.								
Signed					Date	29/08/2018			

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**Framing the debate and taking positions on food allergen legislation:  
The 100 chefs incident on social media**

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### **Abstract**

Those suffering with food allergies and intolerances need to consider risk every day, and professional organisations are increasingly enrolled in this risk management venture (e.g. offering support, developing legislation, and enforcing laws). Following the release of new food allergen rules in the UK, the Daily Telegraph, a national broadsheet newspaper published a letter and an article in March 2015 endorsed by 100 chefs criticising the legislation. The chefs felt that innovation and creativity were being harmed by the requirement to state the presence of 14 allergens in the dishes they cooked. Following the release, many food allergen-concerned consumers utilised social media to share their views. In this article we use qualitative research data, comments posted online and collected between 9 and 16 March 2015, to explore how claimants positioned themselves and others in the ensuing online debate, and how the debate itself was framed. The data included traditional news articles, online forum comments, individual Twitter posts, and Twitter discussions. We identified frames across the debate discourse that emphasised medical concerns around managing risks associated with food allergy/intolerance, the assignment of responsibility, fairness of access, the political nature of the debate, and the financial implications involved. We draw on Positioning Theory to illustrate how user-positions can be defined, redefined, and challenged in the light of new or varying information. Our findings have implications for understanding communication around managing food risks from both a consumer and business perspective, and understanding the progression of debates through both traditional and new media platforms.

**Keywords:** risk, food allergy, food intolerance, framing, Positioning Theory, social media

## **Introduction**

In this article we examine the ways in which the risks associated with food allergies and intolerances are framed in both social and traditional media. We use an online debate that was stimulated by a news article published in the Daily Telegraph on Monday 9 March 2015 voicing the concerns of 100 chefs about new Food Information Regulations requiring them to report of the presence of allergens in the dishes they served. The chefs felt the regulations would hurt their businesses and constrain their innovation in the kitchen. In this article we aim to identify the frames deployed in the debate and within this, to identify the ways in which these frames are drawn upon by individuals to (re)position and (re)present themselves in relation to the enterprise of managing the risks of food allergy or intolerance.

### **Risk, Food Allergies and the Media**

Managing risk in the context of food allergy and food intolerance is a social enterprise (Nettleton, Woods, Burrows, & Kerr 2009). As well as the individuals and their immediate social networks a range of organisations are enrolled in risk management. These range from support and advocacy groups, through to businesses concerned with food safety, information provision, food labelling and training. The emergence of these organisational interests and responsibilities is in part a response to the focus of policy attention on managing risk in this area (Elliot, Fenton, Sinn & Clarke, 2015; Harrington et al 2012). Food allergy is increasingly framed as a risk and public health issue and hence policy actors provide advice, resources and support to individuals, food businesses as well as developing and enforcing legislation. Notably, in 2014 new legislation was introduced requiring businesses to provide information about particular allergens in food they were providing (see Food Standards Agency, 2013).

### **Food Allergy and Food Intolerance**

Although the terms food allergy and food intolerance are often used interchangeably, in medical terms they are separate conditions. Food intolerance describes repeatable adverse reactions to foods that most people would not react to and that do not involve the immune system. It is difficult to diagnose because of a lack of biomarkers. Non-allergic reactions to food may be attributable to a variety of mechanisms, some known and some unknown, including enzyme defects (such as lactose intolerance) and the autoimmune disorder coeliac disease. Symptoms of food intolerance most commonly affect the skin or gut, and usually occur some hours following ingestion of the food. Symptoms can range from mild/moderate (colic, reflux, bloating, and constipation) to severe (severe persistent vomiting or diarrhoea, significant blood in stool, faltering growth). Adverse reactions are only described as allergic if they are caused by mediated reaction to immunoglobulin E, an antibody that triggers food allergy symptoms, which can be confirmed by clinical tests. Food allergy usually presents as a rash or swelling very rapidly after eating; in its most severe form, known as anaphylaxis, the reaction can cause

breathing difficulties, a sudden drop in blood pressure, and on rare occasions is fatal. There is no cure for food allergy; avoidance of the offending allergen(s) is central to managing the condition; anaphylaxis is treated through the administration of adrenalin.

Eating outside the home presents significant challenges for those who are vulnerable and seek to avoid allergens. A systematic review of 24 studies observed that 21-31% of accidental allergen exposure and reactions occurred in restaurants, with 13-23% occurring in the school or work setting (Versluis et al., 2015) and eating out has been implicated in half the deaths related to food allergen consumption (Pumphrey & Gowland, 2007). More commonly however the impact of having food allergy or intolerance is on quality of life (Gupta et al., 2008). In part this is linked to the stigmatisation that can be occasioned by 'going public' about having an allergy or intolerance when eating out; by making claims as part of the eating out experience about needing to avoid particular allergens. In the eating out context not only is the risk of a reaction the greatest, it is here that the identity of an allergic individual is most salient (Barnett & Vasileiou, 2014). A study exploring the experiences of nut-allergic consumers highlighted how the process of checking if available food choices contained nuts was a source of embarrassment for many; the desire to avoid such embarrassment could result in increased risk taking (Leftwich et al., 2011). Begen et al. (2016) found a sense of reluctance and embarrassment when making enquiries of staff around a broader range of allergens, and that avoiding the need to draw attention to oneself was one of the reasons why consumers preferred written information about allergens. Guidance on the management of childhood anaphylaxis has highlighted peer pressure, embarrassment, stigma, choice, and spontaneity as factors that can lead to make risky venue or food selections (Muraro et al., 2014, Peniamina, Miroso, Bremer, & Conner, 2016). Being ascribed the label of a fussy or picky eater challenges the legitimacy of an allergic/intolerant individual's claims (Barnett & Vasileiou, 2014).

The eating out landscape changed when in December 2014 new EU legislation was introduced, incorporated in UK law by the Food Information Regulations (Food Standards Agency, 2013), which required food retailers to provide customers with ingredients information relating to 14 food allergens: celery, cereals containing gluten, crustaceans, eggs, fish, lupin, milk, molluscs, mustard, tree nuts, peanuts, sesame, soya, and sulphur dioxide. The regulations specify that this information should be provided for both packaged and non-prepacked food, including food served in restaurants, cafes, take out facilities and other places where food is served such as schools, nurseries, hospitals, and airlines. Eating out establishments have discretion over how this information is provided to consumers; it could be through written information on signs, menus, or passed on through staff.

On Monday 9 March 2015 the Telegraph newspaper published an article that voiced the concerns of 100 chefs in relation to these new food allergen rules (Dominiczak, 2015). The article, under the headline, 'Top chefs attack EU rules on allergens in food' reported a letter that these chefs had written to the newspaper (Leith et al., 2015) stating that they

felt their 'spontaneity, creativity and innovation' were being constrained by the requirement to state the presence of 14 allergens in the dishes they cooked. Following the release of this article consumers (many writing as individuals with a food allergy or intolerance) took to various internet fora to voice their views on the topic. Contributors provided lengthy comments beneath the online version of the Telegraph article, others took to Twitter to present their views; creating their own hashtags to support focused attention and conversation on the subject (such as #100CluelessChefs and #100Chefs).

This coverage provides an opportunity to consider the way in which the requirements of the legislation were discussed on social media and how the enterprise of managing allergy was related to that of managing risk. In this article we examine how the discussions were framed and the ways in which contributors positioned themselves and others within these frames.

### **Risk and Social Media**

The media play a key role in relation to shaping people's frames of reference around risk (Fuentes & Fuentes, 2015) and are a resource that are drawn upon in the accomplishment of everyday food practices (Keller & Halkier, 2014) though the processes through which, and the extent to which, media influence or reflect public views continues to be a matter of debate. This is particularly the case given the dramatic changes in the media landscape over the last decade with the rise of Web 2.0 and the proliferation of social media and other forms of user-generated content. The terms of the debate have changed with an exponential rise in the platforms that enable citizens and stakeholders to be part of creating and shaping food-related news (Chew & Eysenbach, 2010).

Certainly the media have long been central to considerations of how individuals, groups and organisations make sense of and manage risk but though the internet and the rise of social media may have 'transformed the conceptual framework in which people interpret, perceive, and respond to risks' (Chung 2011, p.3), Lupton (2016) suggests that thus far little attention has been paid to social media and its role in communicating and understanding risk. Early work has considered the comments following online news reports (Regan et al., 2014; Rowe, Hawkes & Houghton, 2008) and Twitter (Binder, 2012; Fellenor et al., 2017; Gaspar et al., 2014).

The evolution of smartphone apps and mobile data availability has enabled social media to become increasingly important to the way in which people search for and consume information online (Dutton & Blank, 2013). It is clear that there are greater possibilities for both stakeholders and the public in playing a significant and visible role in the proliferation of information via social media (Fellenor et al., 2017). Social media platforms give access to an array of information quickly and in real-time, often acting as a key venue where information is sought, and questions are asked and answered (Duggan, Lenhart, Lampe, & Ellison, 2015).

Many food allergic and intolerant individuals employ online sources when managing food related risks (e.g. searching appropriate restaurants, menus and dishes, or ingredients lists of products, and reviews; Begen et al., 2016). Food allergic individuals may lead discussions around food allergy, and related policy (Harrington et al., 2012). There are a range of networks and communities active on social media relating to food allergy and intolerance. In addition to the Food Standards Agency, support organisations (including Allergy UK, Anaphylaxis Campaign, Coeliac UK) utilise social media to help support people with food allergies and intolerances. Groups of like-minded food allergen-concerned Twitter users communicate alongside these more corporate Twitter accounts (e.g. a weekly Twitter discussion group brings together Twitter users interested in food allergen related topics linked through the hashtag #AllergyHour). Individual medical allergy specialists, free-from businesses and allergy catering training companies also regularly tweet about allergy related matters.

Although cues relating to the identity of information sources via social media online may sometimes be limited, engaging on social media platforms can stimulate a sense of social identity or shared group membership amongst their users (Flanagin, Hocevar, & Samahito, 2013), which can enhance motivation to engage and contribute. Group identity has been found to motivate information sharing in online contexts, especially where information is perceived as being of worth to those with similar views (as with online ratings systems; Ling et al., 2005). Furthermore, users perceive information shared by those similar to themselves as more trustworthy and consequently indicate that they would be more likely to act upon the given information (Flanagin et al., 2013). In fact, engagement with online forums around a topic has been seen to improve user well-being as well as promote an individual's involvement in civic activities (Pendry & Salvatore, 2015).

### **Framing and the Media**

Inevitably sources of information available to an audience will be coming from a specific context, angle or affiliation; the information available to us will be framed. Hertog and McLeod (2001) emphasise how analysis of frames/framing has taken a place of prominence in social and political science and media studies. Goffman's (1974) original work *Frame Analysis* noted that in order to make sense of our life experiences we actively categorise, organise, and interpret them. Thus frames are described as schemata of interpretation, and a core organising idea that provides meaning for events or information (Gamson & Modigliani, 1989; Goffman, 1974). Gitlin (1980) describes frames as the continual selection, emphasis, and exclusion of information such that it functions to define problems, assess cause, make judgements and consider solutions (Entman, 1993). Sources of information demonstrate a structure of organised representations, which allude to the backing of certain ideas and encourage ways information sources might be processed by an audience and possibly reused in later discourse/debate (Pan & Kosicki, 1993). Much

framing research has focussed on the frames that emerge in political communications and news media coverage though these are also exemplified in day-to-day conversation and interaction (Hertog & McLeod, 2001). The rise of social media thus offers the opportunity to consider how frames employed in traditional media are appropriated, developed, and challenged or replaced in talk online. The concept of positioning provides a useful conceptual scaffolding for doing this. We will consider this in relation to food allergy and intolerance.

Most of the time there are no visible markers of having a food allergy or intolerance. One situation in which they become 'socially visible' is when claims of being food allergic or intolerant are made in the process of seeking to manage the risk of consuming food containing the allergen, for example when eating out. In this situation, others are enrolled in the process of risk management. However, food allergic or intolerant consumers report that publicly seeking to ascertain the presence of allergens by asking staff about such issues as the ingredients in a dish, runs the risk of being attributed with an allergic or intolerant identity associated with unwanted attention and feelings of stigmatisation (Begen et al., 2016; Leftwich et al., 2011). Claims and attributions of identity are thus inextricably interwoven with the responsibility of eating out venues to provide information about allergy and the interaction around checking and clarification that may accompany this.

One approach that facilitates consideration of the use of frames in relation to an individual's identity or role in specific contexts is Positioning Theory (Harré, Moghaddam, Cairnie, Rothbart, & Sabat, 2009). This theory seems highly appropriate when considering the multiple claimants, platforms, and topics that are present and take place during online debates and in shedding light on how frames are differentially appropriated in line with identity. Positioning Theory is concerned with social episodes, one's rights and duties, and the significance of actions (Harré et al., 2009). Story-lines play an important role here; they allow claimants to position themselves within a specific social episode (Harré & Moghaddam, 2011) and can be seen in online interactions such as when explaining one's experience or expertise during an online discussion. There is some precedent for exploring the use of positioning in the context of social media discourse. One example, from Tirado and Galvez (2007), used the concept to explore discourse taking place during university internet forums, where the act of positioning oneself and others was based on discussions of commitment or non-commitment to a cause. Positioning oneself (reflective positioning), positioning others (interactive positioning), taking up a position constructed by others, or challenging their positions may serve the purpose of defining oneself as different from other groups (Harré & Moghaddam, 2011).

## Methods

The new media environment, where citizens are producers of media content, provides an important opportunity to explore how audiences online engage with traditional media (O'Connor & Joffe, 2014). We will do so in the context of the online debate that ensued after the 100 chefs wrote to the Daily Telegraph to complain that the Food Information Regulations requiring them to report whether any of the 14 allergens were in the dishes they served would hurt their businesses and constrain their innovation. In order to capture initial reactions, we analysed the article that first reported the letter from the 100 chefs and the comments that followed this. Two further articles were selected as they provided an opportunity to include the perspectives of individuals caring for children with allergies/intolerances, and living with an allergy/intolerance themselves. Data from Twitter was captured as it is widely considered to be aligned closely to newsworthy events in real time (Petrovic et al., 2013) and to traditional media reporting (Farhi, 2009), as well as being a forum for debate and expressing opinion (Whiting & Williams, 2013).

### Data Collection

In order to explore the frames for the debate about the 100 chefs incident and the positions that were taken across traditional and social media, we used three articles in traditional media, the comments section from the original source article, and Twitter data collected using two different approaches. All data were collected between 9 and 16 March 2015.

**The Original Article.** The original news article was from the Telegraph reporting the release of the letter from the 100 chefs, which voiced 100 professional chefs' concerns about the allergen legislation and the potential damage on the catering industry (Dominiczak, 9<sup>th</sup> March, 2015). The article itself gave some basic background to the allergen laws and outlined some of the reasons the chefs feel the legislation would harm UK businesses (e.g. by quoting some of the chefs who had signed the letter). The article put a strong emphasis on the allergen legislation being regulated through the EU.

**Article 2.** A subsequent news report, again from the Telegraph, written from the perspective of a parent of children with coeliac disease (Lambert, 12<sup>th</sup> March, 2015). This article was written in the format of a letter to Jamie Oliver (seen here as a supporter of allergen-free cooking), and asked him to set an example to the anti-legislation 100 chefs. The letter also presented examples of both positive and negative eating out experiences.

**Article 3.** A final third news article downloaded from the Guardian newspaper, which explored why chefs were 'cooking up such a fuss on allergy labelling', and why the legislation was needed (Smith, 16<sup>th</sup> March, 2015). The article suggested that so-called top chefs should be leading the way in making it easier for everyone to enjoy eating out, and that implementing the rules should not prove too challenging for experienced chefs.

**Comments on the original article.** The user comments following the online version of the original 100 chefs news article in the Telegraph (see Dominiczak, 2015) were downloaded and regularly checked for additional posts until commentary ceased. In total, there were 63 comments.



**Tweets.** Using a Twitter data collection tool (Chorus Analytics: Brooker, Barnett, & Cribbin, 2016) we collected tweets using two different approaches. Firstly, we accessed tweets utilising hashtags relating to the food allergen legislation and 100 chefs incident:

- the hashtag created by the Food Standards Agency to spread the word of the new regulations, #14Allergens (127 tweets in total),
- the weekly Twitter allergy discussion group #AllergyHour (228 tweets),
- #100chefs (73 tweets) and #100cluelesschefs (16 tweets) – both hashtags created by Twitter users to promote discussion around the 100 chefs incident.

We also accessed tweets from a sample of food-allergen concerned users identified through descriptions in their Twitter biographies, providing 111 tweets from 75 individual accounts. We anticipated that these users would be discussing the 100 chefs incident within their networks, but might not have used hashtags for tweet-capture that would have been accessed via the keyword search method.

We exported tweets into spreadsheets containing post date/time, username, and tweets for analysis. Figure 1 highlights the timeline of the 100 chefs debate. We can see the appearance of each news article included in the analysis, as well as the arrival and longevity of the comments on the original news online platform and of Twitter coverage relating to specific hashtags.

### **Analytic Method**

We used an inductive qualitative approach to identify frames within the debate discourse. Using a sequential process of coding and theme-development for each data source we sought to identify frames within the data and the positions taken on each of the frames. We were attuned to consider both the timing (which day) and the nature of the data (which source/platform). In identifying frames and positions we looked for symbolic devices such as patterns, biases, ideologies and emphasis (Gamson & Modigliani, 1989; Hertog & McLeod, 2001; Streeter, 2009). We adopted an analytic approach in line with traditional thematic analysis including familiarisation, coding, defining and redefining (Braun & Clarke, 2013).

### **Ethical Considerations**

We used the British Psychological Society (BPS) guidelines for implementing internet-mediated research (BPS, 2013). Due to the open access and public nature of the online news article and Twitter platforms, we could not obtain informed consent from any of the users quoted in this report. Twitter, as a company, specifically provides data for the purposes of research; no terms and conditions were broken by not requesting the consent of users whose Twitter posts have been reported in the analysis. We maintained the anonymity of users by not referencing their specific username, full name, affiliation or geo-location. Furthermore, to prevent traceability of tweets and in line with BPS (2013) recommendations, we have paraphrased the quotes. Ethical approval was granted for this research by the Department of Psychology Ethics Committee at the University of Bath (reference number: 15-088).

Source	Duration															
Original Article																
Comments																
Article 2																
Article 3																
#100CluelessChefs																
#100Chefs																*
#AllergyHour																
#14Allergens																*
Users																*
	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7		Day 8	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
	9th March		10th March		11th March		12th March		13th March		14th March		15th March		16th March	
	Mon		Tue		Wed		Thu		Fri		Sat		Sun		Mon	

Figure 1. Overview of sources and their duration/occurrence throughout the 100 chefs incident.

All tweet values exclude retweets; \* = data collection terminated here

## Reflections and Delimitation

Throughout the research process we have been aware of our own experiences, and how these may affect the way we see certain aspects of the collected data. Richard Hamshaw's mother has been diagnosed with coeliac disease for over a decade and it is likely that his experience of eating out with her and his family may have affected the perspectives and views he sees as most important in this research. Furthermore, given that funding for this project was provided by the Food Standards Agency and the Asthma, Allergy and Inflammation Research Charity as researchers we are particularly aware of the issues facing individuals seeking to manage food allergy and intolerance.

Since social media acts as a complementary information network for individuals who consider being well-informed as highly important (Kuttschreuter et al., 2014), it is not unreasonable to assume that Twitter provides access to some of the most engaged and active information seeking individuals. Typical viewpoints may not be seen here, and it is important to be aware that the online media and social media users contributing to this debate may not reflect the stance of all of those seeking to avoid allergens in their food choices when eating out.

## Findings

We identified five frames. These related to medicalisation, responsibility, fairness of access, the politics of Europe, and financial implications. An overview of these frames can be seen in the matrix produced during analysis (see Appendix). We present each of these frames in turn and we consider how people position themselves in respect to each of these.

### Medicalisation

One key frame utilised during the 100 chefs incident emphasised the medical nature of food allergy and intolerance and coeliac disease. For most of the individuals commenting on the 100 chef episode, it was the main justification for the allergen legislation; ultimately the reason it was introduced was to protect people from harm. In this frame there was a clear link between labelling food and managing the medical risk of allergic reactions.

Although the original 100 chefs article in the Daily Telegraph did not refer to medical issues, both the follow-up articles, Articles 2 and 3, highlighted coeliac disease as an important and real illness. However, none of the news articles highlighted the severe consequences of anaphylaxis, which may seem strange considering that referencing a potential life-saving aspect of the legislation may have prompted others to take the issue more seriously. Users in their online posting following the first Telegraph online article did develop the medical frame in the following ways:

*When a diner says they have an allergy that means their body's immune system attacks allergens they're allergic to ... this is something that needs to be taken seriously.*

*So it's okay if I become unwell because of some poorly informed chefs...*

*Bearing in mind that consuming something you're allergic to can cause anaphylaxis in some cases I'm surprised something like this hasn't been implemented before.*

In addition, online commentators used the example of anaphylaxis to support the need for the legislation; some suggested that if chefs had experience with anaphylactic episodes they would be more likely to take the rules seriously. For example Twitter commentators posted the following tweets:

*To see the seriousness of this I wish they'd witnessed a full-blown ana reaction #AllergyHour.*

*If you killed a customer do you think you'd still see the law as excessive? #foodallergy #100chefs #foodsafety*

*So sorry to inconvenience you with our health issues!*

*There was a time when I'd have sympathy for chefs here until boss died of anaphylactic shock, lives more important #14Allergens*

These social media users used claims about the seriousness of medical reactions to position chefs as not taking the medical implications of an allergic reaction into account. By associating their allergy or intolerance with a medical diagnosis or classification, the claimants highlighted the importance and legitimacy of their illness, as well as endorsing the necessity of the legislation itself. However, some social media users who opposed the allergen legislation sought to re-position intolerant individuals as being fussy or picky, undermining their medicalisation claims:

*The issue is many people hide behind so-called allergy because they just don't like some ingredients ... the only people who need gluten free food are people who suffer from coeliac disease (Commenter in original article).*

*It's the frauds that create this hate (#AllergyHour commenter)*

Many of the social media users who commented on the original news article identified themselves with a medical or diagnostic term to emphasise their particular interest and expertise in the issue, for example:

*As someone with coeliac disease I would much prefer written info*

*Having a food intolerance makes eating out so tricky in the UK*

*As a mum of 2 children with multiple allergies it makes me sad to read this article*

However, individuals posting on Twitter did not provide the same identification, perhaps due to the limited character space afforded by the platform; though they often referred to their allergy or intolerance in their bio/profile description. Furthermore, participation in specific allergen-related hashtag discussions, such as #AllergyHour, was likely to signify a participant's position as an allergen-concerned Twitter user.

When participants identified themselves as having a medical allergic or intolerant identity and used the medical frame in this context, it functioned as a 'bottom-line' resource (Shepherd et al. 2007) effectively closing down the options for a contrary comment. Such a comment would be denying the reality of medical condition and therefore be self-evidently misconceived and hostile.

## Responsibility

Those using social media also used a second frame based on the concept of responsibility. This frame was ambiguous as it could position either consumers or producers of food as being responsible for managing the risks of allergens.

Sometimes the responsibility frame was deployed to argue that responsibility should lie with the food allergic/intolerant individual when eating out in a restaurant or food venue, for example by asking and checking about allergens in food before ordering, or ahead of time and being, as one #AllergyHour claimant contended, 'clued up'. Others claimed the responsibility of the consumer through highlighting the costs and administration time involved in meeting the expectations of the regulations for eating out venues through the provision of written information. The allergic or intolerant individual was thus positioned as the active agents in this frame, emphasising that they were the ones making life difficult for chefs:

*It is a total fiasco and in my view is the responsibility of the allerger to ask, not the restaurateurs to list. (chef Thomasina Miers, quoted in the original article)*

One commenter on the original article positioned themselves as an allergic person who recognised their responsibility but that this could not be exercised unless those providing the food took their responsibility

*Unquestionably, overall it is up to me to ask about allergens, but there's no point asking if I can't be given a clear answer*

Other claimants also highlighted the need for both consumer and business to both take responsibility

*by all means make it the responsibility of the consumer to ask, but it should also be the restaurant's responsibility to provide a list of allergen info with these requests (Commenter on the original article)*

*Consumers need to give info and businesses need to care enough to find out for them! (#AllergyHour commenter)*

There were some posts that drew on both the responsibility frame and the medical frame by questioning whether someone with a serious allergy should be eating out at all – suggesting this was irresponsible:

*People with serious life-threatening allergies, in my view, should not be eating out at all (Commenter on the original article)*

However most posters felt that the main responsibility for risk management lay with food businesses and suppliers not vulnerable consumers. They wrote that not only should food venues, chefs and managers take responsibility to provide allergen menu information, but also those that supported food venues and the public bodies should limit risk by enforcing/checking up on food providers:

*It's not just chefs that need to be looking for allergen information, it's also a supplier's duty of care to pass the information on from their manufacturers (Commenter on the original article)*

These posters stressed that those who are providing a service to paying customers should be responsible in providing all information regarding allergen in dishes; so consumers could make informed decisions. One commenter on the initial article who had thanked a restaurant for providing allergy information in a simple and straight forward way reported their response in the following way:

*A restaurant manager returned my thanks and gratitude by saying 'It's not rocket science!'*

These two approaches to responsibility, consumer versus provider, fit with the concepts of rights and duties outlined by Positioning Theory (see Harré & Moghaddam, 2011). On each side of the argument, claimants attempted to position themselves as having certain rights/duties during this debate, and at the same time challenge the rights/duties of opposing-claimants. For example, one allergic individual claimed the right to disregard a chef's standpoint given the incompetence evidenced by misspelling (or mistyping) coeliac (as celeriac) indicting a lack of understanding of the disease and therefore right to make claims:

*You claim you're a chef, but I am deeply concerned you think it is celeriac disease! Celeriac is a vegetable! "Coeliac disease" is actually an auto-immune disease (Commenter on the original article).*

Similarly, chefs positioned themselves as having the right to be creative and spontaneous in their kitchen, but such privileges were challenged by posters who claimed that they did not have real knowledge of food and ingredients if they could not provide information on the allergic potential of some ingredients:

*These regulations don't stifle creativity. All chefs should know what ingredients go into their food, the regulations are only asking for a slightly deeper level of understanding, and to make this information available (Commenter on the original article).*

Thus, posters who claimed chefs should take responsibility for risk management, challenged their perceived incapability to adapt to allergen-free cooking, and a perceived inability to understand the regulations fully as the following two commenters on the original article posted:

*These 'TOP' chefs surely know their ingredients!*

*A bit disappointed with these 'top chefs'. Creativity can come from unexpected challenges, they could look at allergy-free cooking as a chance to explore new recipes*

The critical nature of most of the posting was embodied in the creation and use of the #100CluelessChefs hashtag that positioned chefs as lacking expertise and knowledge to understand and work within the new allergen rules. At the same time, many of the allergic/intolerant claimants positioned chefs or food businesses as essentially uncooperative and irresponsible as they were 'refusing the assignment of duty' the legislation gave (Harré et al., 2009, p.9).

### **Fairness of access**

Another, albeit less dominant frame was the issue of fairness and access with eating out. Several claimants expressed the view that food venues should be as safe as possible so those with food allergies or intolerances had fair access to eating out. Those posters who utilised this frame stated that food allergic/intolerant diners should feel they could eat out in the same way as non-allergic/intolerant customers. These posters emphasised that fair access could be achieved if businesses were willing to put in some time to audit and adapt some of their dishes. In her article in the Guardian (Article 3), Liz Smith suggested that some of these top chefs: 'should be leading the way in making it easier for everyone to enjoy good food.' Those using this frame wrote that allergic and intolerant consumers should not be made to feel any different to other diners. They should be able to eat out like everyone else, or at least know what they could/could not eat, at any venue they visited. When writing to Jamie Oliver in her article in the Daily Telegraph (Article 2), Claire Campbell-Adams stated,

*I don't expect you to change every dish on the menu; that wouldn't be fair on everyone else. But children, especially, with coeliac [disease], have a rough time being different. Couldn't you help them fit in a little?*

One participant in the #AllergyHour discussion stated that chefs needed to 'treat all cases seriously; it's not their job to judge'. Individuals who posted and who indicated they had food allergies or intolerances utilised this frame to position themselves as consumers who have the same rights as other diners. They claimed that restaurants has a duty of care to enable everyone, whether or not they had allergies or intolerances to eat safely. However, there were individuals who took the opposite position claiming that fairness or all-exclusiveness was unrealistic and that people with allergies should accept that they could not eat in some restaurants, as one commenter on the original article wrote:

*We know there would be cries of 'that's a breach of my human rights', if we were to just say don't eat at this restaurant if you're allergic*

### **The politics of Europe**

The original 100 chefs' letter and the article in the Guardian foregrounded EU legislation as a political issue. Their headlines of 'EU is cooking up a nightmare for restaurateurs' and 'Top chefs attack EU rules on allergens in food' highlighted European Union legislation obscuring the risk management focus that is inherent in the medicalisation and the responsibility frames. Some of those posting comments claimed that the legislation was an unnecessary European push for power, and that the European Union should not be imposing regulations on UK businesses. For example, in the original Daily Telegraph article Matthew Elliot from the campaign group Business for Britain was quoted as saying that the legislation was an 'overreaction from Brussels using a regulatory sledgehammer'; a view endorsed in the following tweet:

*Today, I've been eating creative British food, which hasn't conformed to any nice safe EU clap-trap! #14Allergens #100Chefs*

Some posters framed the EU positively, arguing that EU level allergen legislation provided the benefits of having multiple countries following the same rules and of the UK adopting the standards of other EU countries, as commentators on the original Daily Telegraph article noted:

*The regs are there to help the millions across all of Europe suffering from food allergies*

*On a previous trip to France EVERY waiter or waitress I came across knew what Coeliac disease was and what I could eat. None of these restaurants were highbrow/expensive. I've had very different experiences to that in the UK prior to the allergen laws*

Some posters used the EU frame to challenge the position of both the original article and the 100 chefs. The author of the initial article was re-positioned as having the hidden agenda of stirring up EU negativity, proposing that the chefs were used in some way to promote a political agenda - two Twitter claimants stated:

*Here's the organisation backing these silly chefs #100Chefs [link included]  
Slightly embarrassing for these #100Chefs to be used by this anti-EU organisation*

It was only Twitter users and individuals posting online comments on the original article who picked up on the political nature of the original article either supporting or contesting it. The two later newspaper articles did not make reference to this, rather locating the discussion in relation to the responsibility of food businesses to support those with an allergy or intolerance to avoid unpleasant medical consequences.

### **A financial matter**

In relation to implementing the legislation several claimants emphasised the financial implications for businesses in making adjustments for allergen information provision, such as administration and auditing hours, extra print, staff training, and allergen-free alternative ingredients (although the provision of alternatives are not required by the legislation and indeed it is not a requirement of the legislation that written information is provided – this information can also be provided orally by restaurant staff). They stated that adopting the legislation (e.g. menu checking/alterations, and staff training) would generate costs, and if businesses felt their financial security is at risk they might be more likely to support arguments that are critical to the new regulations. The original news article emphasised some of the potential financial concerns:

*They must display information ... or face fines of up to £5,000 for any infraction of the rules*

Matthew Elliot in the original article also highlighted the potential damage to small independent businesses:

*this has unfairly placed too great a burden on the catering industry which will hurt customers, and in particular small independent businesses.*

Posters also linked issues of time and ease with the financial implications involved; many commenters stressed the ease (in their opinion) that auditing dish ingredients would be:

*How long would it take to jot down the ingredients on some paper? Surely good chefs know about ingredients better than most too (Commenter on the original article)*



Some commenters observed that while complying might involve some investment of time this would save time in the future as one commenter on the original article wrote:

*Surely drawing up allergen info during a few hours at work would save staff being constantly hassled by allergic diners like me?*

The original news article positioned chefs as individuals at financial risk, especially when referring to smaller businesses, noting the issues related to time, staff training, or providing new dishes (even if this is not a requirement according to the regulations). Some supporters of the legislation also questioned the chefs exposure to financial risk implying that if this was the case then it reflected their inflexibility and possible incompetence. Most commenters saw the listing/auditing process as simple and relatively straight forward. Others stressed the beneficial implications of providing allergen information, by tapping into a growing and lucrative 'free-from' market highlighting the negative implications of not catering for those with a food allergy or intolerance:

*the gluten free market is estimated to be worth £1.6 billion in the UK (Commenter on the original article)*

*[chefs would be] alienating a big market of consumers who will mistrust for a long time! #AllergyHour (Twitter user)*

Such quotes illustrate the ways in which those with allergies/intolerances to some foods challenged the idea that they were a costly population to cater for; they were repositioning themselves as an untapped source of income and customers, noting that more allergic/intolerant consumers might choose to eat out at an allergen-information friendly restaurant, when originally they may have chosen to avoid eating out at all.

## Discussion

From our analysis of online traditional and social media coverage of the debate triggered by the letter from 100 chefs we identified five main frames that claimants and commenters used. These were frames based on: the medical nature of food allergy/intolerance, consumer and business responsibility, fairness in catering/access, the politics of Europe, and the financial implications of the legislation. These frames were variously deployed with commenters positioning themselves and others to establish, support, resist, ignore or subvert them.

### Positioning and Repositioning

The medical frame was deployed by numerous allergic or intolerant claimants as a way of positioning themselves and their allergy/intolerance as something medically diagnosed, legitimate and important. Those claiming identities as food allergic or intolerant presented their risk management practices when eating out as needing the cooperation of food businesses. The lack of such cooperation and support was depicted as leading to at best, unpleasant and at worst, serious, medical consequences and experiences. Overall it

was not the case that the medical frame was resisted or directly undermined by other commenters, rather it seemed that the medical frame was established in response to its absence in the initial 100 chefs article. In line with Harré et al. (2009) we saw some evidence of claimants opposing the allergen regulations negatively positioning the opposition, attempting to re-position intolerant individuals especially as 'picky eaters'. There was also evidence in the comments of those deploying the medical frame, that they positioned some who avoided allergens as fussy eaters and not as having a real allergy. They sought to distance themselves from such reasons for avoiding allergens, positioning themselves as having a real allergies or food intolerance with serious medical consequences.

The dual consumer and business responsibility frame exemplified the focus on rights and duties outlined by Positioning Theory (Harré & Moghaddam, 2011). We found that claimants positioned themselves as having certain rights/duties and challenging the rights/duties of others. The pro-chefs position focused on their right to be creative and spontaneous in the kitchen, but were re-positioned/challenged as having an inability to be creative with ingredients that did not contain allergens. Similarly, allergic and intolerant individuals positioned themselves as having the right to disregard the chefs' standpoint on the issue due to the legal obligations of the allergen rules and to the necessity – and right – to be able to avoid risk and manage their food allergy or intolerance. The rights and duties concept was also clearly illustrated through the frame associated with fairness. Allergic/intolerant claimants often stated that they have a right to a dining experience similar to those who do not have allergies/intolerances. They wanted to have choices when eating out and did not want to have to make a fuss. Thus food businesses were represented as having an obligation to allow all customers opportunities to eat in their food venues. In line with previous findings relating to embarrassment often involved in trying to obtain allergen information (Leftwich et al., 2011) easier availability of information was represented as reducing the need for unnecessary risk taking.

In the EU frame, the author of the original 100 chefs article was re-positioned as having a hidden agenda of stirring up negativity towards the EU. The chefs focus on the legislation and misunderstandings associated with it (e.g. suggesting chefs would need to provide allergen-free dishes, as opposed to simply stating if allergens were present), enabled pro-legislation claimants to challenge the 'top' description of the chefs. Posters who supported the legislation challenge the representation of the legislation as involving major costs, for example in auditing allergens in dishes and possibly providing allergen-free alternatives. In their posts, allergic/intolerant claimants attempted to redress the cost balance by presenting themselves as a major untapped source of custom.

### Group processes and context variations

When we examined the hashtags used during the 100 chefs incident, we found that reference points changed and developed during the debate. Initially one Twitter user used the hashtag #100CluelessChefs and this was picked up by several allergen-concerned Twitter users. However, following critical comments relating to the fairness of the hashtag (that it prevented those supporting the chefs from contributing) Twitter users shifted to a new hashtag #100Chefs. This was a visible example of ‘self-moderation’ and was evidence of the ways in which some commenters wanted to develop a constructive dialogue.

The nature of the Twitter platform with its limited character capacity of 140 characters meant that Tweepers were unable to refer to multiple concerns when posting a comment or building their argument. This was clear when tweets were compared to other online comments that did not have a word-limit. However, word restriction on Twitter does not render debate impossible. The #AllergyHour hashtag Twitter discussions involved an organised flow of conversation which appeared to be the product of a familiar group setting, populated by like-minded individuals with group ground-rules and expectations. The #AllergyHour discussion around the 100 chef issue moved from initially addressing the financial and political issues considered in the original Telegraph article, to a reflection on potential blame, the medically dangerous nature of allergies/intolerances, just before contemplating responsibility, and what solutions there could be. This flow of discussion reflected Entman’s (1993) observations of the functions of framing; to define issues, causes and make judgements and remedy suggestions.

The multitude of tweets in a small space of time utilising #AllergyHour across the data collection period (compared to other mentions and hashtags) alludes to formation of group membership, which appears to have led to a greater motivation to contribute (see Flanagan et al., 2013; Ling et al., 2005). Potentially, many of the allergen-concerned Twitter users were willing to leave their debate contributions for the allocated time that Allergy Hour meets. This possibility also links with the idea of allergic/intolerant individuals considering the ramifications of being attributed with an allergic/intolerant identity (Barnett & Vasileiou, 2014) and the ‘imagined audience’ online (Marwick & Boyd, 2011). Those participating in Allergy Hour might have felt they had a better idea of the audience receiving their contributions to the discussion, than did posters on more broad/open and less time-dependent hashtag like #14Allergens. Related to this, the effects of group identity and imagined audience may help explain the low level of contributions on Twitter from claimants sympathising with the chefs’ argument. Several pro-legislation claimants (who claim to be allergic/intolerant, or a parent of an allergic/intolerant child) made detailed arguments in early posting perhaps stimulating the development of tentative group identity/position (in addition to a more pro-legislation audience) and placing pro-legislation claimants into the in-group. Research specific to those with food allergies has shown that within the mass media it is increasingly the case that sufferers are taking charge in discussions (Harrington, Elliot & Clarke, 2012). Readers sympathising with the chefs’ argument may have been less inclined to join the Twitter conversation.

**Conclusion**

In this article we have drawn on data from a qualitative study that explored how claimants positioned themselves around the frames used in a debate triggered by a letter from chefs resisting the responsibilities EU food allergen legislation had conferred on them. We have shown how those engaged in managing the risks of having a food allergy/intolerance presented alternative ways of framing the debate and of positioning themselves and others within this in support of their risk management practices. Although the allergen legislation was intended to enable safe and confident choices for those seeking to avoid allergens, the ensuing debate on social media required them to justify their rights and the responsibilities of others. Engagement with social media has provided a useful setting for identifying and considering debates that span the role of individuals in the management of their health risks, through to claims and disclaimers about the role of other individuals or organisations in supporting this venture. Whilst not without methodological challenges, this provides encouragement for the insights that the analysis of social media can provide about the location and nature of responsibility, or the lack of it, for managing health risks.

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## Appendix

Frame matrix for the 100 chefs incident

Frame	Definition	Origin	Reasoning/Outcome	Vocabulary	Examples
Medicalisation	Users emphasise the medically diagnosed nature of a food allergy or food intolerance.	Users commenting on the original Telegraph (A1) article to emphasise the importance of the legislation in saving lives.	Legislation supporters feel need to reiterate that the legislation is there for a reason. Therefore hopefully more people will take the legislation seriously.	Reaction, anaphylaxis, disease, serious	<p>'There isn't a cure' (A2)</p> <p>'... we cannot take risks, we are talking about lives here, not fads' (COM)</p> <p>'I wish they'd witnessed a full-blown ana reaction #AllergyHour'</p> <p>'If you've been in hospital with a child due to a reaction from eating in a restaurant it's hard to listen to chefs saying this' [Users dataset]</p>
Responsibility	Users emphasise how responsibly might lie with various parties e.g., the allergic/intolerance individual, food venues and businesses, or those supporting businesses.	<p>Users who perhaps agree with the 100 chefs take on difficulties with the administration associated with the legislation.</p> <p>Users who believe it is important to ask even if provided or present – for safety.</p> <p>Those who believe food venues etc. should be providing information.</p>	<p>Those who are perhaps anti-legislation feel that those who have allergies/intolerances need to ask and check with chefs (perhaps in advance) rather than expect to be catered for.</p> <p>Those who are providing a service to paying customers should be responsible in providing all info regarding allergen in dishes.</p> <p>If written in law businesses should abide. Businesses should feel they can provide information so consumers can make the right choices.</p>	<p>Responsibility of the "allergies", ask</p> <p>Easy [to stick to regs], simple, outdated, duty</p>	<p>'... in my view is the responsibility of the allergene to ask, not restaurants to list' (Miers, A1).</p> <p>'it is up to me to ask about allergens, but there's no point asking if I can't be given a clear answer' (COM).</p> <p>'... the attitude of Britain's top chefs is looking pretty outdated and churlish' (A3).</p> <p>'consumers need to give info and businesses need to care enough to find out for them! #AllergyHour'</p>

Fairness of Access	Emphasising the need for fairness in making food venues as safe as possible for anyone to eat out. Allergic/intolerant should be treated the same as all customers.	A2 and A3 article emphasise a lot.	Claimants here emphasise that all customers should be able to eat out safely. Allergic and intolerant consumers shouldn't be made to feel any different to regular diners. They should be able to eat out, or at least know what they can/can't eat, at any venue they visit.	Everyone, everybody else, rights	'[chefs] should be leading the way in making it easier for everyone to enjoy good food' (A3). 'all cases need to be taken seriously; it's not their job to judge #AllergyHour' 'that's a breach of my rights' (COM)
The Politics of Europe	Users framing the issue as a political one. Seeing the legislation as an unnecessary European push for power. Users seeing commentaries framed as anti or pro EU.	Twitter comments allude to this. Comments under A1 very much about this issue too.	Anti-EU claimants emphasise that the EU should not be imposing regulations on UK businesses. Those businesses who sympathise with this view may feel their rights (e.g., as creative or spontaneous food providers) are being taken away.	EU claptrap. attack, harming, nanny state	'Brussels using a regulatory sledgehammer to crack a nut' (A1) 'Science in the West is corrupted by big business and politics' (COM). 'So it's some anti-EU organisation. Bit embarrassing for the #100chefs to be used like this really' 'Today, I've been eating creative British food, which hasn't conformed to any nice safe EU clap-trap! #14Allergens #100Chefs'
A Financial Matter	Commentators emphasise the financial implications for businesses having to adhere to the legislation – admin hours, extra print, staff training, and allergen-free alternatives.	A1 makes this a key concern (e.g., affecting small businesses). Comments on A1 also sometimes support this frame of reference.	Businesses that perhaps assume they have to provide allergen-free meals may feel this poses a financial concern (e.g., more expensive ingredients). Adopting the legislation generally (e.g., menu alterations, and staff training) may incur costs. If businesses feel their financial security is at risk they may be more likely to support anti-legislation arguments.	Small businesses, independent businesses	'Costly overreaction' (A1) '... this has unfairly placed too great a burden on the catering industry ... in particular small independent businesses' (Elliot – from Business for Britain, A1). 'they're alienating a big market of consumers who will mistrust for a long time! #AllergyHour' 'But we'll eating out more, spending more, and trying new places since intro of regs. So more money for chefs!' [Users dataset].

**Key:** A1 = original 100 chefs article; A2 = subsequent article 1 responding to original article; A3 = subsequent article 2; COM = comments following the original article online; [italicised] = from tweet/



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## CHAPTER RATIONALE - STUDY 3

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Studies 1 and 2 provided varied insights alluding to concerns surrounding eating out with a food hypersensitivity, and linked with previous literature relating to managing food allergies (Cummings et al., 2010; King et al., 2009; Knibb et al., 2016; Valentine & Knibb, 2011). Study 2 highlighted how different concerns were being fought on the same issue (i.e., from business and consumer perspectives), and how those participating in debates justified their own and the position of others in constructing their arguments. Building on findings from Study 1, further evidence was shown for a unified FH network on Twitter (e.g., in relation to #AllergyHour participation), and how affordances of social media platforms like Twitter can allow for mobilisation and action on an issue, for instance, with the creation of networking hashtags and the use of hashtags as sites for discussion.

In Studies 1 and 2, I was able to make inferences about the reasons behind social media use in relation to food hypersensitivity, but this was implied within the specific contexts of those investigations (i.e., legislation release, and debates surrounding implementation). Study 3 (Chapter 5) aimed to classify social media use for FH reasons more broadly, for instance, considering comparisons between level of platform use generally compared to use for FH reasons, and use for specific reasons (e.g., to find information, connect with others, pass the time) . This approach drew heavily on uses and gratifications theory (UGT), and aimed to outline motivations for FH social media use in relation to aspects of information seeking, entertainment, and social support (Go et al., 2016; Johnson & Yang, 2009; Quan-Haase et al., 2015; Sundar & Limperos, 2013). Studies employing UGT to consider gratification from social media have been published relatively recently (G. M. Chen, 2011; Quan-Haase et al., 2015; Sundar & Limperos, 2013; Whiting & Williams, 2013). However, to date, much of this research appears to consider use of social media more broadly. In Study 3, I considered what needs social media gratifies in relation to food hypersensitivity specifically. I believe this to be the first study of its kind to consider UGT in relation to a health concern on social media. Furthermore, in relation to literature around the challenges of caring for a FH child (Begen et al., 2017; Broome et al., 2015; Knibb, Barnes, & Stalker, 2015; Knibb et al., 2016; Knibb & Semper, 2013) and likely increased need for significant risk management in the light of more salient/severe allergic reactions, I also assessed whether there was an effect of being a parent or level of concern for a reaction, on the desire for information and social support (in comparison to adult


sufferers and those who are less concerned about having a reaction). This was done using a two-by-two between-subjects design to assess the impact of adult/parent status and high/low reaction salience on the importance of information-seeking and social-support motivations.

In addition, Study 1 and 2 began to highlight the importance of understanding how social media users assess the information they encounter online, especially when using platforms for health information or advice seeking. There has been some thorough research around credibility and online information (see Cheever & Rokkum, 2015; Flanagin & Metzger, 2000; Flanagin & Metzger, 2007; Flanagin, Metzger, Pure, Markov, & Hartsell, 2014; Metzger & Flanagin, 2015; Metzger, Flanagin, & Medders, 2010), but research into credibility perceptions of *social media* information is still very much in its infancy (e.g., Waddell, 2017; Westerman et al., 2014). To explore considerations of credibility in relation to food hypersensitivity, Study 3 took an experimental approach to investigate perceptions of credibility, persuasiveness and intention related to particular features of Twitter posts. These features were: social validation indicators (likes and retweets), and provision of links to external webpages accompanying tweets. This aspect of Study 3 was informed by the Elaboration Likelihood Model (ELM), which considers the effects of central and peripheral information in relation to message credibility perceptions (Chang, Yu, & Lu, 2015; Petty & Cacioppo, 1986). Study 3 was conducted via an online questionnaire, with 251 self-reported FH participants. A copy of the questionnaire can be found in Appendix B. A further two-by-two between-subjects design was used to assess the impact of tweets with high/low social validation indicators (likes and retweets) and inclusion/exclusion of a link. Four outcome variables were considered in relation to credibility of tweets: perceived message credibility, source credibility, persuasiveness, and intention to act upon the information.

Findings would provide insight into the value of social media for FH individuals and indications for the way that Twitter posts are processed in the context of this health concern, for instance, via central or peripheral features. Consequently, findings could prove a valuable asset in understanding how to better support those who use social media to help manage health conditions. In addition, insights into how to more successfully promote information and strengthen perceptions of credibility and the persuasiveness of the content will be valuable to stakeholders involved in public health campaigns and provision.

Study 3 is published in *Frontiers in Public Health* and presented in final manuscript form.

## Statement of Authorship

This declaration concerns the article entitled:									
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Candidate's contribution to the paper (detailed, and also given as a percentage)	Richard Hamshaw made considerable contributions to the conception of the study (80%), as well as the methodological design (80%). The research process, including the acquisition of and analysis of data was predominantly conducted by Richard (80%). Richard also primarily executed the presentation of the study and associated data in journal format (80%).								
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.								
Signed						Date	29/08/2018		



**Tweeting and eating: The effect of links and likes on food hypersensitive consumers' perceptions of tweets**

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### **Abstract**

Moving on from literature that focuses on how consumers use social media and the benefits of organizations utilizing platforms for health and risk communication, this study explores how specific characteristics of tweets affect the way in which they are perceived. An online survey with 251 participants with self-reported food hypersensitivity (FH) took part in an online experiment to consider the impact of tweet characteristics on perceptions of source credibility, message credibility, persuasiveness, and intention to act upon the presented information. Positioning the research hypotheses within the framework of the Elaboration Likelihood Model and Uses and Gratifications Theory, the study explored motivations for using social media and tested the impact of the affordances of Twitter—(1) the inclusion of links and (2) the number of social validation indicators (likes and retweets). Having links accompanying tweets significantly increased ratings of the tweets' message credibility, as well as persuasiveness of their content. Socially validated tweets had no effect on these same variables. Parents of FH children were found to utilize social media for social reasons more than hypersensitive adults; concern level surrounding a reaction did not appear to alter the level of use. Links were considered valuable in obtaining social media users to attend to useful or essential food health and risk information. Future research in this area can usefully consider the nature and the effects of social validation in relation to other social media platforms and with other groups.

**Keywords:** food hypersensitivity, food allergy, food intolerance, social media, Twitter, Uses and Gratifications, Elaboration Likelihood Model.



## Introduction

As the structure and function of online media has developed to enable more active citizen involvement, understanding why we use and respond to social media is of increasing interest to scholars exploring online behavior (1). Access to social media platforms and their two-directional communication affordances means Internet users can readily connect with others and share information. One area in which social media is receiving increasing attention is around managing food risk—both in relation to the activities of those that seek to manage the risks to which consumers might be exposed (2–5) and of the ways in which consumers interact with social media as part of their information-seeking activities (5). Building on this, the more particular focus here is upon how judgments about the credibility and persuasiveness of social media information and intentions to act upon it are affected by structural elements of the social media communication. We focus on Twitter as a widely used and researched social media platform that (6) in a context where social media is increasingly used by risk communicators around food issues (7). We address this with a group that has particular reason to consider the veracity and provenance of information about food—food-hypersensitive (FH) consumers that are seeking to avoid food that contains particular allergens. Twitter is a useful tool for this community for gathering or sharing important and useful information as well as seeking social support (8).

The introduction will unfold as follows. We first seek to characterize the research that has addressed how consumers use social media information in relation to food and introduce the social media platform—Twitter—that is the focus of this study. Having outlined how information on social media may have particular salience for those with FH, we introduce the theoretical perspectives that frame the study: Uses and Gratifications Theory (UGT) and the Elaboration Likelihood Model (ELM), before outlining the exact focus on the present study and the hypotheses that will be addressed.

### Social Media and Food-Related Information

There is a small but growing body of evidence about the way in which, and the reasons why, people use social media in relation to food. Consumers regularly use social media to both seek and share information about food, illustrating passive and active behavioral approaches. In a more passive sense, consumers might seek information about products, recipes, diets, healthy eating, and risks (9–11). Alternatively, users may actively share food information themselves (12) or seek support/advice from their online peers (13, 14). This active collective participation on social media is highly significant; users take notice of the information posted by other users and not just authorities on the topic. The origin, credibility, and content of social media posts and related comments are features users routinely consider when making judgments about food safety information (15). Other research has analyzed consumer engagement with social media to show patterns of coping with food-risk incidents, such as information-seeking around appropriate food choice or

handling (16, 17) as well as the way in which expert presentations of the underlying food science can be dismissed, discounted, or contested when the information is incongruent with their opinion (18).

Social media has quickly become an expansive resource of information and can give users access to some of the most engaged members of the public (5, 6). Consequently, social media has a role in public discourse around risks and concerns, has an information-providing function, and signals a decreased dependence on traditional media outlets (19). The increase in information sources available on social media may amplify consumer perceptions of risk and uncertainty, making this an important area of research (20). Stakeholders no longer need to go through traditional media channels; they can report an issue exactly when and how they wish (4). Increasingly, such bodies utilize this advantageous feature of social media for food-risk communication as well as health and safety campaigns (5, 21–23). Platforms allow for the rapid distribution of information and can assist in managing public reactions toward risk events, as well as encourage appropriate behavior, calm, educate, and increase awareness (4, 23, 24). Organizations also recognize that the information consumers themselves post on social media can provide important intelligence that can inform their risk management strategies (25) or food choice decisions relating to consumer perceptions of health and well-being (12). Thus, food organizations are pushing information out to consumers and may also seek to learn from the information that consumers are posting (3, 23).

Twitter is a social media platform that is increasingly important in food-risk communication. Although less popular than Facebook, it is widely used with 17.1 million UK users in 2018 (26). As a real-time news-style platform, information can be rapidly disseminated, publicly challenged, and can spread and become established through the process of retweeting (4). Information on Twitter takes the form of comments which can contain the names of other Twitter users, hashtags (#)—which function to organize themes across tweets—and links to other media sites (URLs). Each tweet is associated with information as to the number of times that it has been shared (retweeted) and liked (27). The availability of this information has served to focus research interest (6). Indeed, Tufekci (28) contends that the clean and simple structure of Twitter enables it to serve as a “model organism” that “facilitates progress in basic questions underlying the entire field” (p. 506). This simplicity has allowed for the creation of stimuli to explore perceptions of Twitter information within an experimental study design.

Twitter has become a key communication tool for organizations seeking to manage risk (2, 23). This is not only because it provides a channel to send information out as part of a public health campaign, for example, but also due to the potential insights provided through content analysis of tweets (12, 16), sentiment analysis of Twitter data (17), linking Twitter data with other types of data such as demographics to provide information about users themselves (29), or overlaying tweet content with geolocation data (30). The UK Food

Standards Agency has recently analyzed Twitter data to help detect outbreaks of Norovirus in order to inform the timing and location of interventions (31). In line with the work by Gaspar et al. (16, 17) who look at what tweets reveal about coping patterns with a food contamination incident, the current study also considers individual patterns of Twitter use. Our focus is upon understanding how the functionality of Twitter can influence public perceptions of a message independently of the content of tweets. We explore the activities of users and the affordances of the Twitter platform (32) in relation to a group of users who have a particular motivation to avoid and to manage risk in relation to food consumption: those seeking to avoid allergens in their food.

### **Food Hypersensitivity**

Food hypersensitivity refers to individuals who suffer reproducible negative symptoms whenever they eat a particular food and denotes both food allergy and non-allergic FH [e.g., food intolerance and coeliac disease (33)]. Living with FHs involves constant risk assessments surrounding the foods one consumes. This is especially the case when eating outside the home (34). Those with food intolerance wish to avoid repeatable adverse reactions to foods such as bloating, constipation, vomiting, and diarrhea. Food-allergic individuals, in more severe cases, need to avoid allergen consumption that could lead to anaphylaxis (associated with breathing difficulties, sudden drop in blood pressure, and potential death).

The role of social media in providing information or social support for people with FHs has received little empirical attention. Given that there is no cure for FH and the prevention of a reaction by avoiding consumption of the offending food allergen is vital, it is not surprising that social media provides information (e.g., product alerts) and sources of support through forums, discussion groups, blogs, and microblogs (8). Social media has also increasingly become a platform for industry, support groups, and those with regulatory responsibilities to circulate information relating to FH. The Food Standards Agency (@foodgov) routinely tweet allergen alerts and product recall information relevant to allergens.

Recent research has alluded to ways in which FH consumers utilize the Internet to gather information about allergens before eating out (35). Several strategies were employed, including menu-checking via websites, using search engines to check if specific dishes usually contain an allergen, as well as using QR-code scanning to check for specific ingredients via links. This is particularly significant insofar as consumers with FH had a clear preference for written rather than oral information. This sense of reluctance toward asking staff for information appears to manifest from feelings of embarrassment and a reluctance to be seen as making a fuss or drawing unwanted attention to themselves (35).

Having noted the increasing ubiquity of social media for communicating food risk and the particular salience of this for those that are seeking to avoid allergens, we introduce two theoretical frameworks that are used to (1) situate our consideration of how social media

is used by FH individuals (UGT) and (2) how the affordances of Twitter might shape responses to information encountered (the ELM).

### **Need Satisfaction Through Social Media**

There has long been a focus on the gratifications of media use (36). UGT is “a psychological perspective that examines how individuals use mass media, on the assumption that individuals select media and content to fulfill felt needs and wants” (37) that more recently has been applied to use of the Internet (38, 39) and to social media (40–42). Research has identified a range of factors motivating Internet use such as information-seeking, entertainment, relaxation, and passing the time (38–40). In terms of social media, motivations similarly fall broadly into the realms of information-seeking, passing time, and entertainment, but with greater emphasis on news sharing, social interaction, keeping in touch, and surveying what others are doing (40–44). Thriving groups of specific health-concerned users interact on social media and make use of such platforms for sharing useful information and emotional support [e.g., people living with cystic fibrosis—(45); diabetic individuals on Facebook—(46), and FH individuals on Twitter—(8)]. For people caring for loved ones, social networking platforms can be a good source of reassurance (47).

Research has suggested that the use of Twitter echoes complex purposes relating to information and social engagement such as sharing information to gain attention (48), building networks and engaging with other users (49) as well as distributing and discussing news (50). UGT has recently been used to address questions relating to Twitter (51, 52). Twitter users may gain a range of gratifications related to information and social networking (51). Some research has asserted that the most important Twitter motivation relates to the need for social connection (53), and others have suggested that Twitter is mostly used as an information source, rather than to satisfy social needs (54). However, the research in this area thus far has suggested that the provision of information and of social support may be primary gratifications that using Twitter (as well as other social media platforms) can provide. When we consider the particular situation of consumers with FH, previous research indicates that parents of FH children face particular concerns and challenges around their responsibilities for the care and safety of their child (55), which may manifest as stress, anxiety, and depression (56). Consumers concerned about FH utilize online resources to help avoid consuming allergens they or their child react to (8, 35). Both FH adults and parents access social support via social media. However, parents have a unique set of concerns and seek the expertise of other FH parents, in part to help with the responsibility they have in managing their child’s reaction to consuming allergens—which in the case of an allergy may be life-threatening (57). Thus, we hypothesize that due to the greater level of responsibility and challenges FH parents face, they will be more motivated to use Twitter for information and social support:

**H1:** Parents caring for a FH child will be more motivated to use social media for information and for social support compared to FH adults.

Consumers with FH will vary in the severity of their reactions—following a classification system derived in relation to peanut allergy, reactions can be classified as mild, moderate, and severe (58); the salience of more recent and severe reactions that may be life-threatening nature is more likely to be associated with a greater concern. We would therefore hypothesize that seeking social support and information relevant to past reactions or avoiding future reactions is likely to be more pronounced in these individuals:

**H2:** Individuals with high reaction salience will be more motivated to use social media for information and social reasons than those with low reaction salience.

### **The Effects of Tweet Characteristics on Credibility, Persuasion, and Intention**

Twitter provides information about the extent to which any particular post (tweet) is socially validated—that is, the extent to which it has been attended to by others either by them retweeting or liking it (27, 59). This is not to say that the act of liking or retweeting indicates agreement with the content, simply that to the viewer these metrics designate it as having been of public interest—or not. Tweets may also contain links to other external sites (via a URL). The presence of a link may too function to validate the sense that the views being expressed are not simply those of one individual but are supported by material located elsewhere online (60). The question then arises as to how, if at all, the affordances of links, retweets, and likes affect the assessments of those viewing the tweets. Relevant assessments might include the credibility of both tweet and tweeter, how persuasive the content or source is, and (if relevant) the intention that it might inform future actions.

Faced with a vast array of Internet information, questions regarding how people perceive and assess the credibility of the information they encounter have become particularly salient (40, 61). Given the relative ease with which content can be published and altered online, often coupled with the lack of information verification systems, it is important, albeit difficult, for citizens to evaluate the quality and potential inaccuracies of online information (62, 63). These platforms act as key information networks for individuals who consider being well informed as important (5); inaccurate information relating to life-threatening conditions, such as food allergy, could have serious consequences for consumers (8).

The tenets of the ELM are relevant to considering assessments of credibility and persuasiveness of a message/source (64). The ELM considers two routes of persuasion: (1) the central route, which persuades people who carefully consider a range of information contained within the source message, and (2) the peripheral route, which sees cues such as subjective impressions and surrounding/contextual information persuading individuals

who lack motivation or ability to consider a source's finer details (64). Recent research has considered the relative effects of these routes in social media (65), suggesting that the popularity of a post affected the perceived persuasiveness of the message although this was attributed to both central and peripheral processing. Focusing more on the potential peripheral nature of like/retweet information, Waddell (66) tested if high or low like/retweet levels moderated the effect of credibility and issue importance from online comments. This was not found to be the case; rather suggesting that such features are hard to process (67). Furthermore, inferences about the credibility of a source of health information may be based on perceptions of how professional or official a website design is (68). In another example of how peripheral information can be used to infer credibility, Cheever and Rokkum (69) highlighted how design and testimonials or comments from other web users are often employed to assess the credibility of materials above more formal verifications about the information (e.g., affiliations). Indications of the involvement or approval of others may also act as descriptive norms (70), indicating how common a particular behavior or a view is in a group that one belongs to or identifies with (71). Tweets relevant to those with FH are likely to make a FH identity salient (72), and thus indications of being validated by others to whom it is relevant may function as cues to being persuasive and credible and as encouraging intentions to relevant allergy management actions.

Research on FH certainly highlights the everyday rules of thumb and use of peripheral cues, by, for example, forming judgments of whether allergen management in an eating-out venue will be good on the basis of factors such as labeling and perceived cleanliness of the establishment (55, 73). For those who seek to communicate about allergens on Twitter, it will be useful to understand what peripheral cues might shape reactions to their messages.

In summary then, we would propose that the information embedded in tweets both the links to other information and the numbers of retweets and likes that the post has attracted (i.e., the level of social validation) will affect assessments of the credibility and persuasiveness of the message and intentions to take relevant action:

**H3:** Higher levels of likes and retweets from other users on tweets will positively influence ratings of source and message credibility, persuasiveness, and intention.

**H4:** The presence of a link as additional information following a tweet will positively affect message and source credibility, persuasiveness, and intention.

## Materials and Methods

### Design

A two-by-two between subjects quasi-experimental design was used to assess the impact of adult/parent status and high/low reaction salience on the importance of information-seeking and social-support motivations. A further two-by-two between subjects experimental design was used to assess the impact of tweets with high/low social validation indicators and inclusion of a link/no link. There were four outcome variables: perceived message credibility, source credibility, persuasiveness, and intention.

### Participants

Respondents were primarily recruited from a contact list of FH individuals (or parents of FH children) who had taken part in a related study by Barnett et al. (74), had indicated that they were social media users, and agreed to be re-contacted for subsequent projects by the research team (ethical approval reference number: 16-146). Additional respondents who met the same criteria were also sought through advertisements on the member websites and social media accounts of Coeliac UK and Allergy UK. In total, there were 251 questionnaire respondents. Full ethical approval for this research project was granted by the Department of Psychology's ethics committee at the University of Bath (reference number: 16-275). Table 1 outlines the study population demographics; Table 2 summarizes the characteristics of participant FHs.

**Table 1. Demographics characteristics of questionnaire sample**

(N=251)	N (%)
<u>Gender</u>	
Female	228 (90.8)
Male	21 (8.4)
Prefer not to answer	2 (0.8)
<u>Age category</u>	
18-24	14 (5.6)
25-34	62 (24.7)
35-44	92 (36.7)
45-54	47 (18.7)
55+	36 (14.3)
<u>Location</u>	
UK resident	245 (97.6)
Non-UK resident	6 (2.4)
<u>Adults</u>	155 (61.8)
<u>Parents</u>	96 (38.2)
<u>Twitter Familiarity*</u>	
Twitter users	101 (40.2)
Not Twitter users	150 (59.8)

Note: \* - Twitter use in relation to food hypersensitivity

**Table 2. Characteristics of participant food hypersensitivities**

(N=251)	N (%)
<u>Food Sensitivity Category</u>	
Allergy	76 (30.3)
Intolerance	174 (69.3)
Unsure	1 (0.4)
<u>Allergens causing sensitivity*</u>	
Gluten	149 (59.36)
Cows milk	93 (37.05)
Peanuts	71 (28.30)
Egg	54 (21.51)
Other nuts	52 (20.72)
Soya	36 (14.34)
Sesame	20 (7.97)
Fish	11 (4.38)
Crustaceans	8 (3.19)
Molluscs	8 (3.19)
Sulphur dioxide	7 (2.79)
Mustard	6 (2.39)
Lupin	6 (2.39)
Celery	4 (1.59)
Other(s)	50 (19.92)
<u>Diagnosis type</u>	
Formal medical diagnosis	218 (86.85)
Alternative diagnosis	8 (3.19)
Self-diagnosis	10 (3.98)
Other	15 (5.98)
<u>Speed of reaction</u>	
Immediately	89 (35.46)
Within 1 hour, but not immediately	62 (24.70)
1 to 24 hours later	82 (32.67)
After 24 hours	18 (7.17)
<u>Reaction salience</u>	
High concern	107 (42.6)
Low concern	144 (57.4)

Note: \* - can be more than one causative allergen

## Materials

The online questionnaire survey was hosted via the Qualtrics survey platform<sup>6</sup>. Initial questions related to demographic and FH information, as well as typical use of social media platforms and those used specifically in relation to FH. In assessing reasons why social media sites were potentially utilized for reasons relating to FH, an adapted version of a Uses and Gratifications Social Media measure was employed, taking account of elements relating

<sup>6</sup> <https://www.qualtrics.com/>



to information-seeking, social connection, and entertainment gratifications (40). The scale wording was adjusted to fit more appropriately to the FH focus, and thus a factor analysis was conducted to confirm the constitution of the scales.

Two independent variables (IVs) were experimentally manipulated. Sample Twitter feeds were used to embed manipulations associated with the ELM. High and low levels of social validation (through likes and retweets) established peripheral information cues, high levels were shown with between 98 and 152 retweets and between 226 and 505 likes (Figure 1), and low levels were shown with maximum one retweet and five likes (Figure 2). The inclusion or exclusion of links established central cues.



Figure 1. Sample Twitter feed stimuli used for condition 1, showing high retweets and likes, and links included.

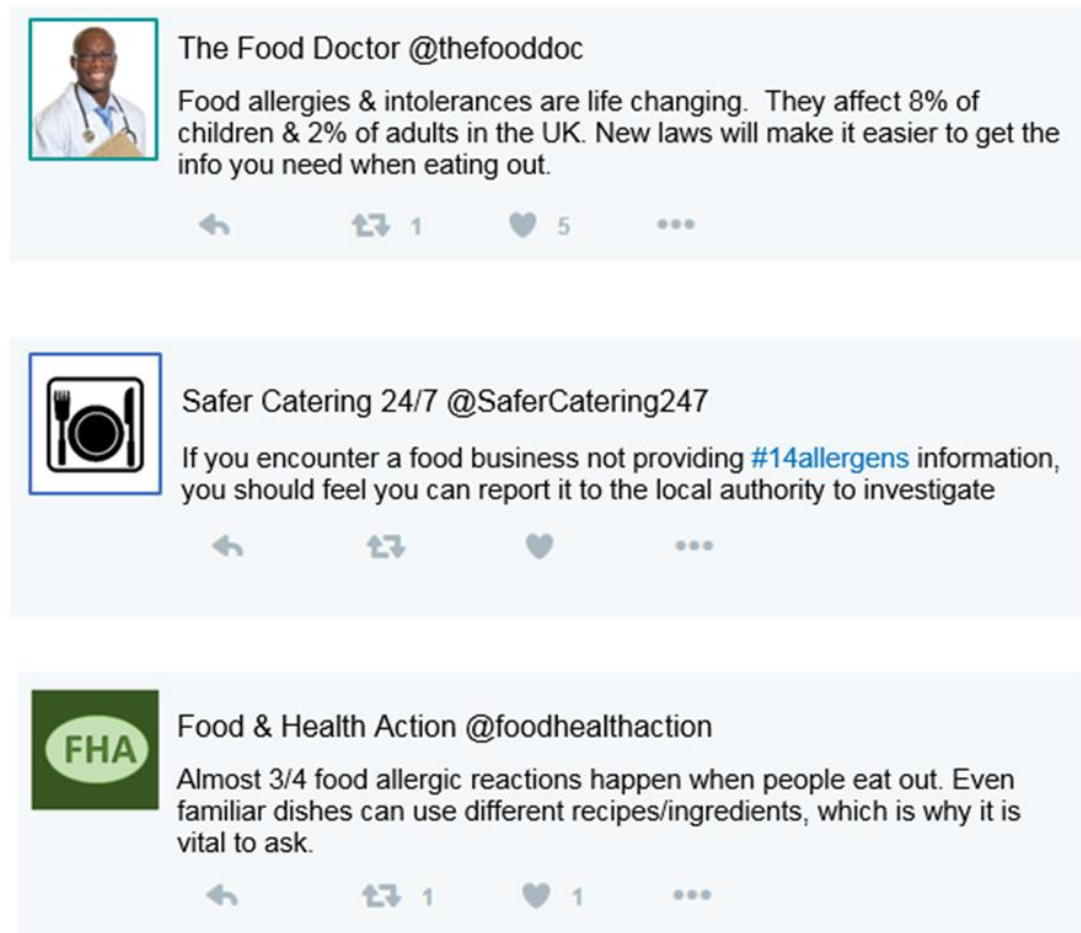


Figure 2. Sample Twitter feed stimuli used for condition 4, showing low retweets and likes, and no link.

Manipulation checks were conducted in order to assess if participants had interpreted the IVs as intended. To check for perceptions of social validation, participants were asked to what extent they felt that information from the tweets was appreciated by and shared between social media users with ratings from 1 “not at all” to 5 “extremely.” To check for the perception of link inclusion, the second check asked to what extent participants felt tweets made use of links to other websites from 1 “never” to 5 “a great deal.”

There were four dependent variables (DVs): two measures of credibility perceptions—message credibility (75) and perceived source credibility (76), a persuasiveness measure adapted from Maio et al. (77) to closely fit with the topic of FH and a measure of intention to ask about the presence of allergens when eating out [adapted from Ref. (78)]. Although one might expect FH adults or parents to routinely ask about this, previous research has identified reluctance and embarrassment around asking about allergen-free food choices with a preference for written information (35). To explore the effect of concern about an FH reaction, a composite of scores for speed of reaction, reaction recency, and the recency of the most severe reaction formed a low or a high reaction salience grouping variable<sup>7</sup>. Table 3 outlines the items that comprise each measure, response options, and scale reliabilities.

<sup>7</sup> Further details on the structure and creation of this composite variable can be requested from the corresponding author for this paper.

**Table 3. Items, response options, reliability test means, and standard deviations for study measures**

Measure	Items	Response Options	Reliability	Mean (SD)
Message Credibility Measure	How well do the following adjectives describe these Twitter posts: 1) accurate, 2) authentic, 3) believable	(1) describes very poorly to (7) describes very well	$\alpha = 0.89$	4.82 (1.19)
Perceived Source Credibility Measure	Based on your perception of the Twitter posts, please provide an evaluation in terms of the following features: 1) knowledge, 2) expertise, 3) trust, 4) reliability	(1) not very knowledgeable to (7) very knowledgeable  (1) not expert to (7) expert  (1) not trustworthy to (7) trustworthy  (1) not reliable to (7) reliable	$\alpha = 0.96$	4.54 (1.41)
Persuasiveness Measure	How persuasive were the Twitter posts? Please provide your evaluation for the following questions below: 1) To what extent do you find the Twitter posts persuasive? 2) How convinced were you by the argument that asking for allergen information when eating out is a good thing? 3) To what extent were you convinced that asking for allergen information is good, specifically because it may increase the likelihood that food venues will provide the information? 4) To what extent do you agree with tweets that asking for allergen information when eating out is important?	(1) not at all to (10) extremely	$\alpha = 0.84$	7.29 (1.88)

Intention Measure	Please indicate how likely it is that: 'If you are unsure about the presence of allergens in a dish next time you are eating out, you intend to ask for the information'	(1) unlikely to (7) likely	Single item	6.57 (0.95)
Manipulation Check Questions	To what extent do you feel the information posted was appreciated and shared amongst social media users?  To what extent do these posts make use of links to other websites?	(1) Not at all to (5) Extremely  (1) Never to (5) A great deal		2.97 (1.04)  3.06 (1.50)
Uses & Gratifications for Social Media	For the following section please select to what extent you agree with each statement, beginning with the phrase - "I use social media in relation to food allergy/intolerance": <i>Information-seeking motivation</i> 1) ... so that I don't miss the important issues of the day 2) ... to know others' opinions about food allergy/intolerance 3) ... to understand a range of views relating to food allergy/intolerance 4) ... to get useful information relating to food allergy/intolerance <i>Entertainment-seeking motivation</i> 5) ... because it is fun 6) ... because I enjoy it 7) ... to relieve boredom 8) ... to relax <i>Social-seeking motivation</i> 9) ... to connect with other users that are concerned with food allergy/intolerance 10) ... to get support from other people with food allergies/intolerances 11) ... to feel like I belong to a community of food allergic/intolerant people 12) ... to talk about food allergy/intolerance with others	(1) strongly disagree to (7) strongly agree	$\alpha = 0.67$  $\alpha = 0.86$  $\alpha = 0.85$	5.22 (0.94)  3.69 (1.30)  5.20 (1.17)

## Procedure

Respondents were given access to a link allowing them to complete the questionnaire, either through an email invite, social media post, or link on Allergy UK or Coeliac UK's member websites. Respondents were initially presented with an information sheet and online consent form, outlining the study and information on participation. First, we collected basic demographic information, information about the nature and severity of the respondent's FH, and their patterns of social media use (in general and for reasons relating to FH) followed by completion of the adapted Uses and Gratifications for Social Media measure. Second, the social validation and link-inclusion manipulations, drawing on the ELM, were then presented in one of the four randomized conditions: (1) the presence of a link and high social validation indicators, (2) no link included and high social validation, (3) link included and low social validation, and (4) no link present and low social validation. Respondents then completed the manipulation checks to ensure that they were aware of the presence of shares/likes and the inclusion or exclusion of links. Scales measuring credibility (two scales), persuasion, and intention followed these simulated tweets<sup>8</sup>. The debrief information page, giving an outline of the study aims, links to further information, and the opportunity to enter a prize draw, concluded the survey. The survey took approximately 20–30 min to complete.

## Data Analysis

A principal axis factor analysis was conducted to verify our adapted 13-item Uses and Gratifications for Social Media measure. Reliability using Cronbach's alpha values was utilized for all composite variables. Two-way multivariate analysis of variance models were conducted to explore the effect of the IVs on selected DVs<sup>9</sup>. All analyses were conducted using IBM SPSS statistics software.

## Results

### Reliability of Measures

Message and perceived source credibility measures and message persuasiveness had a high level of internal consistency, as determined by Cronbach's alpha values of >0.80 (79). The principal axis factor analysis conducted on the Uses and Gratifications for Social Media in relation to FH measure indicated that the overall Kaiser-Meyer-Olkin (KMO) verified the sampling adequacy for the analysis, KMO = 0.79 (80), and all KMO values for individual items were greater than 0.72 [acceptable limit = 0.5; (81)]. Three factors had eigenvalues over Kaiser's criterion of 1 and in combination explained 61.12% of the variance. Following analysis of factor loadings after rotation, factor 1 represented social-

<sup>8</sup> To provide information for another study, respondents were finally asked if they could identify any social media users that they considered to be expert or trustworthy. This information is not reported here.

<sup>9</sup> More conservative analysis of variance models were chosen, as opposed to multiple t-test comparisons, to avoid increasing the probability of type 1 errors (Field, 2013). These analyses are based on asymmetrical distributions using the F-ratio, meaning an option between one or two-tailed testing is not possible (Coolican, 2009). Typically, MANOVA designs warrant non-directional hypotheses. However, past literature indicated a likely direction of effect, and thus logical predictions were presented in line with the review. Means were examined and reported to determine direction of differences (Pallant, 2016). One-tailed testing would have removed the opportunity to explore deviations in predicted direction that may have been valuable for this exploratory research (Pillemer, 1991; Rice & Gaines, 1994).

seeking motivation, factor 2 represented entertainment-seeking motivation, and factor 3 information-seeking motivation. Analysis of the pattern matrix following oblique rotation highlighted that the item “I use social media in relation to food allergy/intolerance: to present myself to others as a person managing a food allergy/intolerance” loaded on both social and entertainment-seeking factors and was therefore removed. Cronbach’s alpha for the three individual gratification measures showed appropriate levels of internal consistency [all moderate to high reliability; (79)]. The measure for information-seeking bordered on the 0.70 cut-off for Cronbach’s alpha (0.67). Inclusion was justified due to the low number of measure items and negligible distance from a typical acceptance value.

### **Use of Social Media Platforms**

The sample of FH-concerned social media users consisted of 228 females, 21 males, and 2 respondents who did not wish to say. There were 96 parents of FH children and 155 adults with FH themselves; 76 respondents were classed as having a food allergy and 174 classified as having food intolerance (those with coeliac disease and IBS-related conditions were also included in this group); one participant did not answer this question. On average, respondents used 4.24 social media platforms for general use and 2.77 platforms for reasons related to FH [difference = 1.47, 95% CI (1.25, 1.63),  $t(251) = 14.91$ ,  $p < 0.001$ ]. All social media platforms were used less often in relation to FH except support forums, which were used at the same frequency across both types of use. When using social media for reasons related to FH, participants unsurprisingly made more use of social media for information-seeking ( $M = 5.22$ ,  $SD = 0.94$ ) and social support ( $M = 5.20$ ,  $SD = 1.17$ ) than they did for entertainment ( $M = 3.69$ ,  $SD = 1.30$ )<sup>10</sup>.

### **Differences in Media Use for Information and Social Support**

We addressed the question of whether parents (vs. FH adults) and higher (vs. lower) reaction salience groups were more motivated to use social media for information and social support with a two-way MANOVA. This indicated that there was a statistically significant main effect of being an adult or a parent on using social media for information and social support,  $F(2,241) = 3.93$ ,  $p = 0.021$ , Wilks’  $\Lambda = 0.968$ , partial  $\eta^2 = 0.032$ . Neither the interaction effect nor the main effect of reaction salience was statistically significant. Follow-up univariate tests indicated that there was a statistically significant main effect of being an adult ( $M = 5.04$ ) or a parent ( $M = 5.47$ ) for using social media for social support in relation to FH issues,  $F(1, 245) = 7.66$ ,  $p = 0.006$ , partial  $\eta^2 = 0.031$ . There was no difference between FH adults and parents for information-seeking. These findings offer partial support for Hypothesis 1, since parents were shown to be more motivated toward using social media for social support than FH adults were, though not for information-seeking. Hypothesis 2 was not supported as reaction salience did not affect information-seeking or social support.

### **The Effect of Link Inclusion and Social Validation on Twitter**

<sup>10</sup> For completeness of analysis, paired-samples t-tests confirmed a statistically significant mean increase of 1.53, 95% CI [1.35, 1.71],  $t(246) = 16.54$ ,  $p < .001$ ,  $d = 1.05$  between information-seeking and entertainment, and between social-support and entertainment 1.52, 95% CI [1.31, 1.72],  $t(246) = 14.83$ ,  $p < .001$ ,  $d = 0.95$ . As anticipated, there was no significant mean difference between information or social motivations .015, 95% CI [-0.13, 0.16]  $t(246) = 0.21$ ,  $p = 0.84$ ,  $d = 0.013$ .

Due to the specific nature and structure of Twitter, only participants who indicated that Twitter was one of the social media platforms they used ( $n = 130$ ) were included in the analysis of responses to the Twitter stimuli. The number of participants in each condition can be seen in Table 4.

**Table 4. Descriptives and overview for experimental manipulation conditions**

Condition	Link-present	Level of social validation	<i>N</i>
1	Yes	High	29
2	No	High	35
3	Yes	Low	29
4	No	Low	37
			130

### Manipulation Checks

An independent samples t-test showed that participants in the high likes/shares condition were more likely to indicate that the tweets were appreciated by others ( $M = 3.23$ ) than those in the low likes/retweets condition ( $M = 2.72$ )  $t(132) = 2.90$ ,  $p = 0.004$ . A second analysis indicated that participants in the links-included condition were more likely to report that the tweets make use of links ( $M = 4.28$ ) than those in the no-links-included condition ( $M = 2.07$ )  $t(122.125) = 13.265$ ,  $p < 0.001$ . In sum, both manipulations were successful.

### Main Analysis

A two-way MANOVA was run with two IVs – link presence and social validation level, and four DVs – message credibility, source credibility, persuasion, and intention. To control for the possible effect of information-seeking and social-support orientations, these variables were added as covariates. Hypothesis 3 was not supported as there was no statistically significant main effect of social validation level on the DVs. There was no interaction effect. In support of Hypothesis 4, there was a small but statistically significant main effect of link presence on the DVs,  $F(4, 121) = 3.78$ ,  $p = 0.006$ , Wilks'  $\Lambda = 0.89$ , partial  $\eta^2 = 0.11$ .

Follow-up of the significant main effect of link presence with univariate two-way ANOVAs demonstrated that there was a statistically significant main effect of link presence ( $M = 5.17$ ) vs. link exclusion ( $M = 4.54$ ) for message credibility –  $F(1, 124) = 10.97$ ,  $p = 0.001$ , partial  $\eta^2 = 0.08$ . There was also a main effect of link presence on persuasion (link presence  $M = 7.64$ , link omission  $M = 7.01$ ) –  $F(1, 124) = 5.68$ ,  $p = 0.019$ , partial  $\eta^2 = 0.04$ . There were no significant differences for source credibility and intention. Thus, Hypothesis 4 was partially supported since the inclusion of a link in a tweet enhanced perceptions of message credibility and persuasiveness.

## Discussion

This study first investigated the way in which FH-concerned individuals used social media, noting that both adults and parents utilized platforms primarily for information and social reasons. However, parents of FH children used social media for social support significantly more than FH adults. The study also explored how socially validated information and inclusion of links in tweets affected inferences about the credibility of tweets, persuasiveness of the tweet content, and intention to act upon the information. There was no effect of social validation (number of likes/retweets) but the inclusion of a link increased perceived credibility of the message and persuasiveness of tweet content.

Previous research has suggested that Twitter is primarily used for either information or social purposes (53, 54). Our findings support UGT research around social media use [e.g., Ref. (51–54)], demonstrating that users are interested in FH, either for their own food sensitivity or their child's, value social media platforms for seeking social support, but also for information provision. However, although there were no differences in relation to using social media for information provision, parents of children with allergies/intolerances were more strongly oriented to use social media for social-support reasons than were adult sufferers. This is in line with Broome et al.'s (57) findings around an FH parent's need to develop a sense of expertise in FH through the use of the Internet and online parenting communities, seeking the knowledge of other parents with FH children. It also links with Begen et al.'s (55) and Cummings et al.'s (56) observations around concerns and challenges associated with the care of FH children specifically, which are eased through support and advice of others in similar parenting circumstances—as noted by Broome et al. (57). A higher salience of a potential FH reaction was not associated with a greater use of information or social support on social media. It may be the case that having any form of negative reaction to a food allergen is enough to promote a desire to seek out information and support relating to one's condition. It may also be that it is the day-to-day routines of needing to eat, buy, and prepare dishes without the problematic allergen(s) that are the trigger for information-seeking and social support rather than the severity and recency of previous reactions.

Responses to the experimental manipulation demonstrated that the presence of links in Twitter posts had a positive effect on ratings of message credibility, as well as of persuasiveness but not on ratings of source credibility or intention. The level of social validation for each Twitter post did not alter user perceptions of any of these measures. The findings of Park et al. (82) on the effects of product reviews suggest that the inclusion of the links represented a cue to quality, a validation of the content, thus increasing the credibility and persuasiveness of the tweets for the invested FH users in our sample. The ELM might suggest that our sample of FH-concerned users would be more likely to carefully consider (centrally process) the tweet content (textual information within the tweet), rather than attending to the more peripheral cues provided by the likes and retweets. Further in line



with ELM, a more knowledgeable and involved audience will favor a central processing route, as they are more motivated to attend to and understand the message content (83). The effect of link inclusion on message credibility but not source credibility specifically may further reflect a preference toward central processing; the peripheral position of the tweet-author in the experimental stimuli may have meant that participants were not paying attention to the source (tweet-author) at all. Contrary to the evidence that in reality FH-concerned individuals are restrained in asking about allergens when eating out [e.g., Ref. (35)], the overall study mean for intention here suggests a high willingness to ask. This may show a ceiling effect, but may also reflect a more engaged audience (i.e., a volunteering sample).

The lack of effect of social validation (likes and retweets) manipulation is perhaps more surprising, given the high value participants attributed to social media for providing social support around FH and the routine use of rules of thumb for making judgments about allergy management (73). It may also be that in the unfamiliar study context, participants did not rely on these rules of thumb but rather preferred to bypass the more peripheral cues and scrutinize the content of the arguments closely in order to decide whether or not to trust it (83)—particularly given how important it is for those with FH to make good decisions about the presence of allergens in food (35, 73). The absence of an effect of retweets and likes is also in line with the work by Waddell (66). He considers the notion that, contrary to the assumption we have made, such features may not be considered as social validation but rather as statistical information that is difficult to process (67). However, the Waddell study also considered the effect of a richer set of cues in terms of comment valence—one might expect that more minimal indicators of social validation may be less likely to have an effect in this context.

Our research further progresses our understanding of the affordances of social media [e.g., (1)]. We have seen that those who are utilizing platforms for information or social reasons, or around a health topic, are likely to be influenced by the presence of external websites/links. Linking to additional evidence is likely to increase perceptions of credibility and the persuasiveness of the information. Moreover, a greater understanding of the features of Twitter posting specifically in relation to food issues furthers our understanding of how to approach managing risk communication more appropriately around a topic like FH, for example, during times of emergency (23). Support organizations and public health bodies would do well to integrate the use of links into their social media policies and encourage users to click links for further details. In line with Miller and Bell (22), this would assist users (especially those who are less experienced with social media use) in distinguishing more trustworthy information online. By the same token, however, it is equally possible that unofficial advice about allergy may be considered as more credible and persuasive simply by virtue of containing a link to other sources. Such concerns were raised in discussions around the issue of evaluating the quality and inaccuracies of online information by Flanagan and Metzger (62), and Lee et al. (63).

### **Limitations and Future Research**

Participants in this study are by definition those with a particular interest and involvement in the issue of FH. It would be beneficial to explore effects with a broader sample—or indeed include measures to characterize the exact degree of involvement and interest in the issue under scrutiny. This would give greater clarity as to whether the effect of the presence of links remains with a less-invested sample, and/or if the level of social validation has an effect on perceptions of credibility (through a peripheral processing route). It would also be useful to further disentangle the effect of links (e.g., tiny URLs/shortened links, links that do not state the source in the web-address, etc.). In fact, it is impossible to separate the effect of inclusion of links to web-addresses like the Food Standards Agency, BBC news, and Anaphylaxis Campaign (a leading allergy charity in the UK) or the presence of links generally on subsequent ratings. In addition, a study design that allowed participants to access a link and included this as either an IV or a DV would be highly informative. As well as broadening or better characterizing the participant group and extending the manipulations, there is also the more basic issue that may undermine the results of the present study, that is, whether retweets and favorites actually convey social validation. One of the ways in retweets can be used is to “call out” the author of the tweet and to add a comment that expresses a different view. It might therefore be useful to establish whether retweets and favorites may be viewed differently, vary in the extent to which they represent social validation, and thus should be disaggregated.

A further limitation of the present study is that it provides no understanding of the extent to which the effects we have seen (and not seen) are a function of the sources (authors) of the tweets. There is a long history of offline research looking at the effects of source credibility (84, 85), and it is quite possible that the effect of link inclusion would be mediated by the way in which the source/author is regarded. This in turn is likely to be a function of the person viewing the source. It might be, for example, that parents would likely see other parents' accounts on Twitter or Facebook as more credible than those with FH themselves would.

### **Conclusion**

Social media use around FH is valued both for the information and for the social support that it provides. The inclusion of links within tweets increased ratings of message credibility and persuasiveness of the post-content. This, and the lack of impact of social validation indicators such as retweets and favorites, appears to indicate that in the domain of a health issue, such as FH, that in the online setting of Twitter, information is centrally processed. Consequently, links are potentially a valuable asset for health-concerned users to attend to useful or essential information via social media. The concerned health community of those with FH valued the information within posts rather than the cues provided as to the popularity of the post. In support of Coulson (32), it is crucial to understand the affordances of the different social media platforms, in order to know how to better support online communities who use them to help manage health conditions.

**Ethics Statement**

This study was carried out in accordance with the recommendations of the British Psychological Society Code of Ethics and Conduct with informed consent from all respondents. All respondents gave informed consent in accordance with valid consent procedures in line with Internet-mediated research participation. The protocol was approved by the Department of Psychology's ethics committee at the University of Bath (reference number: 16-275).

**Author Contributions**

RH designed and conducted the reported study and produced the written manuscript. JB assisted in the study design and provided detailed comment and amendments to various manuscript versions. JL assisted in the study planning and provided a detailed comment on the various versions of the manuscript.

**Conflict of Interest Statement**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## CHAPTER RATIONALE - STUDY 4

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Study 3 demonstrated that social media use was valued both for information and social support in relation to food hypersensitivity. Additionally, the inclusion of links within tweets increased ratings of message credibility and persuasiveness of tweet-content. This, and the lack of impact for likes and retweets, showed that when judging FH information on Twitter information was processed in a more central manner. Thus, FH users valued information within posts rather than cues signifying popularity or approval. Consequently, links are potentially a valuable asset for delivering essential information via social media, and are considered to be a better indicator of credibility by FH users than features of tweets such as likes and retweets.

Connected to credibility and persuasiveness of information and authors of social media content is the issue of perceived expertise. If users are seeking credible information they are likely to be seeking an expert, especially in the context of advice (Newman, 2014; Thompson, Bissell, Cooper, Armitage, & Barber, 2012). Typically, expertise is assessed through academic qualifications, years spent in a specific role, or experience (Chi, 2006). When we consider levels of experience, distinctions between experts and lay persons can be seen as flexible and dynamic, since a person with years of experience may not necessarily hold a qualification (Gregory & Miller, 1998). These considerations, and findings from Studies 1, 2 and 3 relating to the use of social media for FH information and support, raised questions of who might be thought of as expert in this new media setting.


Study 4 (Chapter 7) outlines findings from a qualitative email interview study that aimed to investigate perceptions of expertise in food hypersensitivity on social media. Perspectives in this study were sought from FH-concerned social media users (both FH individuals and parents of FH children), and individuals already considered potential experts in food hypersensitivity on social media. Research materials, including participant consent forms, email interview schedules, and debrief forms can be found in Appendix C. Perceived experts were identified as part of the questionnaire administered during Study 3, which asked participants to suggest users or accounts they considered expert on social media in the FH realm. Rather than inferring details about social media information from what people are doing or by manipulating features of social media posts, I gave FH concerned individuals the chance to discuss their own understandings around social media use in relation to food

hypersensitivity, and especially how they feel expertise is played out here. Study 4 was novel in the way it additionally included perspectives from perceived FH experts. It was also innovative in how these experts had been identified previously by those who took part in this study. I was not basing participant selection on whether I thought users were expert, instead they had been identified as such by the sample.

Study 4 illustrated several considerations and processes employed by users when assessing the expertise of those on social media, and builds on ideas associated with likes, retweets and use of links explored in Study 3. Findings were expected to prove beneficial to both medical and organisational stakeholders involved in the support of those living with life-changing conditions, such as food hypersensitivities.

This paper is currently under review in the *Journal of Medical Internet Research* and is presented here as the submitted manuscript.

### Statement of Authorship

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Candidate's contribution to the paper (detailed, and also given as a percentage).	Richard Hamshaw made considerable contributions to the conception of the study (80%), as well as the methodological design (90%). The research process, including the acquisition of and analysis of data was predominantly conducted by Richard (90%). Richard also primarily executed the presentation of the study and associated data in journal format (80%), and presented associated content at academic conferences.								
Statement from Candidate	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature.								
Signed					Date	29/08/2018			



**Perceptions of expertise in food hypersensitivity on social media:  
An email interview study**

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**Abstract**

*Background:* Seeking and sharing information are primary uses of the internet and social media. It is therefore vital to understand the processes individuals go through when engaging with information on these diverse platforms; especially in areas such as health and risk-related information. One important element of such engagement is evaluating and attributing expertise to others.

*Objective:* The study aimed to explore how meanings around expertise in relation to food allergy/intolerance (food hypersensitivity) were constructed by two groups of social media users; 1) those who use platforms for reasons relating to food hypersensitivity, and 2) those seen as experts by this community.

*Methods:* Email interviews were conducted with food hypersensitive adults ( $n = 4$ ), parents of food hypersensitive children ( $n = 4$ ), and perceived experts in food hypersensitivity on social media ( $n = 5$ ). Data were analysed thematically using Braun and Clarke's approach.

*Results:* The thematic analysis demonstrated that judging expertise on social media is a complex and multi-faceted process. Users might be judged as expert through their professional background, or their experience living with food hypersensitivities. How users behave on social media, and the traces of their online activity can influence how others will see them. Such considerations are both measured and moderated through the social media community itself. Findings highlighted how social media often acts as a supportive information tool following a diagnosis, but this also raised concerns if patients cannot access suitable vetted information.

*Conclusions:* This work has implications for understanding how users perceive expertise on social media in relation to a health concern, and how information assessments are made during management of risks. Findings will prove beneficial to both medical and organisational stakeholders involved in the support of those living with life-changing conditions, such as food hypersensitivities.

*Keywords:* social media; expertise; food allergy; food hypersensitivity; coeliac disease; email interviews; thematic analysis

## Introduction

In today's internet age, people attend to the information they encounter on social media, and seeking and sharing health-related information is common practice [1-3]. In situations where there is the possibility of negative health consequences it is important that people are acting on truthful and reliable information. Judgements about the expertise of the source are an important part of this, and it is therefore important to know what the heuristics for judging expertise are in the context of social media. One such situation with potential negative consequences to health is that of food hypersensitivity – conditions associated with the need to avoid specific foods that cause adverse reactions [4]. By gaining an insight into perceptions of expertise in food hypersensitivity on social media, and from the perspective of both those living with hypersensitivity and those deemed to be expert in this area, we can further shed light on the dynamics of expertise on social media in relation to food, health and risk. A greater understanding of the factors that affect individual perceptions of expertise online may have implications for agencies and organisations that support people with health concerns.

### Food Hypersensitivity

Food hypersensitivity occurs in people who suffer reproducible adverse symptoms when eating specific foods, and denotes both food allergy and non-allergic food hypersensitivity e.g., food intolerance and coeliac disease [5]. Living with food hypersensitivities involves constant risk assessments surrounding the foods one consumes. This is especially the case when eating outside the home [4, 6-8]. Those with food intolerance wish to avoid repeatable adverse reactions to foods such as bloating, constipation, vomiting and diarrhoea. Coeliac disease is an autoimmune disease caused by the immune system reacting to the protein gluten (found in the cereals wheat, barley and rye), which shares similar adverse reactions, but can have long-term consequences if undiagnosed, such as anaemia, fatigue and weight-loss. Food allergic individuals, in more severe cases, must avoid consuming allergens that could lead to anaphylaxis (associated with breathing difficulties, sudden drop in blood pressure, and which may be fatal). Given these characteristics of food hypersensitivity, this is an ideal domain within which to explore attributions of expertise on social media, since misinformation may have significant consequences. The aim of this email interview study was to explore how food hypersensitive (FH) social media users and perceived experts in food hypersensitivities on social media construct meanings around expertise. To this end, we will first consider how expertise can be defined and interpreted, how internet users seek information on social media, the cues they use to assess potential expertise and how they validate the information they encounter.

### **Defining Expertise**

Experts typically have comprehensive and authoritative knowledge in a specific area [9]. They are well-regarded by their peers, relay accurate and reliable information, and have gained extensive knowledge through their experience [10]. Being an expert is normally considered a good thing; to be respected or cited in relation to one's area of expertise [11]. Expertise is largely an attribution; someone is usually considered an expert because others say so [11]. Expertise typically encompasses assessments of credibility, trustworthiness, believability and accuracy of information [12]. Expertise might be assessed through academic qualifications, years spent in a specific role, or experience [13]. The importance of experience, however, highlights how distinctions between experts and lay persons can be flexible and dynamic, for example if a lay person has experience in a certain area [14]. Expertise is contextually valuable; an individual may know a lot about specific contexts and situations (e.g., from their life experiences) but little outside of that environment [14]. Whether expertise on specific social media platforms holds true for expertise in other contexts (e.g., offline or via different platforms) is worth consideration; Sternberg and Frensch [11] note "experts in one place or one time are not necessarily considered to be experts in another place or another time" (p.195).

### **Seeking Information from Experts on Social Media**

Seeking and sharing information are primary uses of the internet and social media [15-18]. In comparison to more traditional media, social media allows users to communicate in a reciprocal way, exchanging knowledge, sharing opinions or challenging information from others [19]. Health information-seekers can readily connect with those who share similar health concerns [20, 21]. In fact, information circulated among peers, especially those perceived to be similar, may be more influential than formal expertise [21, 22]. Social media can offer access to other people living in similar circumstances, and as a result those managing health conditions often turn to their social media peers for help, perhaps for emotional peer support e.g., from other parents of allergic children [7, 23]. This instant and supplementary access to other perspectives contrasts with information provision practices within a more formal medical setting.

Information seeking practices online can be dependent on individual characteristics or motivations of the user. Metzger and Flanagin [12] highlight how the level of accuracy an information-seeker is aiming for, their "accuracy goal" [24], will vary when using the internet. When using social media, for example, information seeking might be quite casual – where accuracy in the information is less crucial (e.g., searching for ideas on Pinterest), or purposeful – where getting the correct information is important (e.g., around a medical concern). Information in line with current beliefs tends to be noticed and valued more, with discrepant information more likely to be disregarded – even when opposing arguments are well argued and evidenced [25].



Thriving groups of specific health-concerned users exist on social media, for example diabetic users on Facebook [1], and food allergic/intolerant individuals on Twitter [26]. Those with health-concerns are sharing experiences as well as gaining independence and self-sufficiency online [3]. For people caring for loved ones, social networking platforms and forums comprising people in similar circumstances can be a source of reassurance and support [20]. However, having many “authors” of relevant information on social media can pose difficulties for credibility assessments since the origin and development of a source can become difficult to authenticate [12]. A lack of verification systems or formal gatekeepers, and the fact that in the majority of cases any user can publish or post information online, mean that it is important to understand how people assess the credibility of the information they encounter [2, 12, 16, 27]. In light of this, we now turn to consider the cues used to assess information online. Metzger and Flanagin [12] provide a useful framework for considering the kinds of cues that could affect perceptions of expertise in terms of source, author and message assessments.

### **Source Assessments**

In internet research to date, source has often referred to the websites that present information; ‘source’ and ‘site’ are often used interchangeably. Cues to credibility provided by the source of the information have included – design, navigability, absence of errors, links to other reputable sources (or academic citations), evidence of sponsors, or whether the site makes money from advertising or product promotion [12, 28-30]. In a review of several studies about online health information seeking, Cheever and Rokkum [31] highlight how testimonials or comments from other users upon web content are increasingly being employed to assess the credibility and veracity of online content. However, in the realm of social media, a ‘source’ is more challenging to define. It might refer to the platform user profiles are held upon (e.g., Facebook, Twitter or Instagram) – but user profiles themselves might be seen as separate sources, as they hold much of the information to be considered a site in their own right (e.g., their own web-address, content and layout). Research around website assessments of credibility are likely to relate to certain sources such as blogs, but the multi-dimensional nature of social media does not translate so easily: a platform that might be considered credible by users may not necessarily always contain credible sources of information although familiarity with a specific platform may give a user better tools to make assessments about the information or users within [32, 33].

### **Author Assessments**

Certain characteristics of the authors of online material can help other users assess the expertise of the published information. Metzger and Flanagin [12] highlight factors such as the author’s qualifications, reputation or professional association, available contact information, and lack of commercial motives. Social media allows us to make quite detailed

judgements about individuals we encounter as users leave traces of their online activity. For example, having many followers on one's social media accounts, or having forum answers ranked highly by other members could be potential signals of expertise [34]. Similarly, the reactions of others may have some bearing on how individuals judge the expertise and reputation of social media accounts; shares, retweets, comments, and likes can be used as indicators to affirm how others see sources of information online [34, 35].

Often in the absence of an official or qualified source, users with experiential knowledge or "situated understandings" may be mobilised to offer additional insights on an issue [36]. People with long term illnesses may become expert in their particular condition based on experience and specific contexts that relate to their health concern [14]. Cues relating to shared and lived experience can lead to a sense of collective trust. For example, parents of newly diagnosed food allergic children were seen drawing on the expertise of other parents they knew had gone through the same sorts of issues [23]. In another example, users of a multiple sclerosis (MS) support forum were seen to share experiences and treatments in addition to (what was considered) static online advice monitored by the professional MS bodies [37].

### **Message Assessments**

There are a range of cues that may be utilised to infer the credibility of the online content: clarity of writing, accuracy, presence of bias, recency of information, and supporting evidence [12, 28-30]. In the realm of health information online, the use of medical discourse holds high social status and legitimacy [see 38], increases a user's social credibility and is often a cue to expertise [38]. Furthermore, employing community terminology (such as abbreviations and acronyms), as well as presenting information as factual are also ways of performing expertise [39-41]. Cues of a social nature that are attached to social media posts, such as comments, likes and shares are likely to play a significant role in how users make message assessments, for example whether they accept or trust the information provided, or wish to participate in the discussion themselves [31, 35, 42].

### **Research Objective**

In this study, we investigate how users construct meanings around expertise on social media in the area of food hypersensitivity. We explore the construction of expertise from two user-perspectives; 1) social media users who are FH or parents of FH children, and 2) perceived experts in food hypersensitivities within the FH social media community.

## **Method**

### **Design**

In total, 13 email interviews were conducted with 8 FH adults/parents of FH children who use social media (hereafter referred to as FH participants), and 5 perceived experts in food hypersensitivity on social media. Given the focus of the study, we knew participants were confident to engage online; social media users are likely to be technologically able, and access to the internet was not an issue. Email interview techniques were chosen here as they are particularly appropriate when participants are asked about something that they are unlikely to have explicitly considered before, or that may require conveying past experiences or memories [43, 44]. The approach gives participants time to contemplate questions; we were able to explicitly ask participants to consider their responses before replying, as well as provide examples from their own social media activities if it helped them get their point across or jog their memory. The ability to review responses sets this approach apart from many other forms of qualitative data collection, and can provide more articulate responses and richer, more focussed data [44].

### **Participants**

Two groups of interview participants were recruited. One consisted of FH social media users who identified potential experts in food hypersensitivity within their social media networks. This sample of users had taken part in a previous survey and had given permission to be re-contacted for this follow-up study [4]. 14 FH social media users were invited to participate in the study; 8 took part. Demographic characteristics can be seen for the FH participants in Table 1. Another sample comprised of users identified by the FH participants as experts in relation to food hypersensitivity. From respondents on the previous FH survey, 98 potential experts were identified; this list contained multiple duplicates, and following inclusion criteria for accounts managed by individuals (as opposed to larger organisations), and those contactable through social media or public email addresses, a list of 30 potential experts was created. 16 users from this list were randomly selected and invited to participate; 5 took part. The professions and backgrounds of experts varied, comprising a health journalist and writer, food policy official, FH travel writer, social media discussion group moderator, and FH recipe blogger. There were four female experts and one male expert.

Table 1

*Demographic characteristics for FH participants*

	N
Female	7
Male	1
Age	
18-24	0
25-34	3
35-44	4
45-54	0
55+	1
FH Adults	4
Parents of FH children	4
Diagnosis	
Allergy	5
Coeliac Disease	3
Speed of reaction	
Immediate	5
From 1 hour	2
1 – 24 hours	1
24 hours +	0
Reaction causing allergen <sup>a</sup>	
Cow's milk	2
Nuts	3
Eggs	1
Gluten	3
Peanuts	1

<sup>a</sup> FH adult or child may experience reactions from more than 1 allergen.

**Materials**

Email interview schedules covered questions relating to typical use of social media, and aspects of accounts that may be considered as cues to expertise (or lack of expertise). Questions were informed by the literature and were checked and clarified with the research team and other colleagues in order to minimise the possibility that participants would require clarification or explanation for participants, which would have unnecessarily increased the number of email exchanges. FH participants were asked questions around their reasons for highlighting specific users as expert. Questions to experts asked participants to reflect on their own expertise and their thoughts on being perceived as expert by others users. The schedules were intended as guides to the interview structure with a degree of question flexibility for follow-ups on relevant information. Separate email invitations and consent forms were developed for each group.

## **Procedure**

After participants agreed to take part in the study and provided informed consent, participants were emailed the first set of questions. Like face-to-face interviews, subsequent questions followed-up aspects of previous responses and asked for elaboration or further explanation, as well as providing the next schedule questions. On completion, a final debriefing email was sent to thank participants for taking part, and to give further information about the study. Due to the longer duration of email interviews, and time taken by participants to type responses, a £20 Amazon voucher was given to interviewees as compensation for their time and to thank them for participating. On average, there were five email exchanges (i.e., email sent and responded to) with each participant; a minimum of three and maximum of seven. Typically, each interview email included two or three questions (with probes) for participants to respond to. Email interactions were anonymised and saved as Microsoft Word documents to facilitate analysis. Pseudonyms replaced names of individuals referred to in the interviews. Names of organisations were retained. Participants were able to use their preferred internet-enabled device to respond, and at a time and place that suited them.

## **Ethics**

To give consent, participants were asked to type their name and date in the final section of the email information sheet to confirm they understood the study information. An email interview approach itself can resolve some ethical considerations associated with typical face-to-face interviews; participants must actively click to send responses, and this arguably acts as a second phase of consent – the risk of participants inadvertently sharing something is much lower. Data security and confidentiality remained paramount. Data was stored on secure password-protected university servers, and names or associations linked to participants were removed from transcripts. Approval to contact participants from a previous study was granted approval by the University of Bath ethics committee (reference: 16-146), approval for this project was also granted by the same committee (reference: 17-004).

## **Analysis**

An in-depth qualitative thematic analysis was conducted, following the guidelines set out by Braun and Clarke [45, 46]. Early stages of analysis featured thorough familiarisation with dataset content and development of initial codes (e.g. through annotation of interesting elements relevant to the research questions). Following initial descriptive first-order coding, codes were grouped into more specific/related second-order codes, which were used to develop overall themes. Final themes were reviewed and refined to ensure that they appropriately explained their content, and considered as much of the data as possible. The number of interviews analysed would be considered appropriate in line with typical email interview samples [see 47]. Guest et al [48] note when coding for overarching themes, a sample of six interviews can be sufficient to enable development of meaningful themes and beneficial interpretations. The homogeneity of our sample (the FH-concerned) and clear aims surrounding perceptions (of expertise) further support the suitability of our sample size [48].

## Findings

In outlining findings, we discuss observations across and within groups in order to develop a clear narrative that highlights associations and overarching concepts relating to perceptions of expertise in food hypersensitivity on social media. In quoting from FH participants (P1-8), FH demographic information is highlighted: FH 'Adult' or 'Parent' of a FH child; sensitivity as 'Allergy' or 'Coeliac'. Perceived expert participants are denoted by E1-5. Five main themes were identified in the data: 1) advice surrounding diagnosis, 2) expertise acquired through lived experience, 3) discerning traditional expertise online, 4) social validation of FH information, and 5) cues to expertise in social media content.

### 1. Advice Surrounding Diagnosis

One prominent theme related to the way in which social media played a role in providing information surrounding FH diagnosis, primarily following diagnosis. Here the locales of expertise begin to be defined in the data, such as traditional medical expertise required before and at diagnosis, and expertise in living with food hypersensitivity thereafter. The recently diagnosed were seen as having a strong desire to learn as much as possible at a time of perceived vulnerability; when it was important to find information that could be trusted:

*I think people new to the world of allergy struggle to see what is correct and what isn't (P8-Adult-Allergy)*

Participants spoke about personal experience as well as the experiences of others. Information that related to the everyday experience of living with food hypersensitivity was needed and valued at the time of diagnosis. Social media was a place the newly diagnosed could find those with plenty of experience living with their condition:

*I've recently met some mums who have just started out on their CMPA journey and I've recommended these groups to them. They've found them so useful ... such a shame dieticians aren't signposting people to these useful groups or NHS trusts setting up their own! (P1-Parent-Allergy)*

Individuals were drawn to forums and discussions related to their particular allergen concern, and spoke about using information gathered online to supplement the information formally conveyed to them at diagnosis. Participants gave examples of the information they sought, such as appropriate food product choices, recipes and advice on eating-out, travelling, or caring for children with allergies when at school/nursery. Traditional expertise appeared to be relevant and primarily located at the time of diagnosis, and seen to provide initial guidance only:

*However, my personal experience ... is you get your diagnosis, you go away with your list of foods and your left to it. Yes you have a follow up appointment with the dietician 6 months after and can call for advice. But I feel you are just left to work the rest out (P1-Parent-Allergy)*

One participant was keen to highlight how the National Health Service (NHS) support after diagnosis was more child/parent-focussed, and that additional support on social media was useful for adult patients:

*[The Facebook group] provides ... support to those newly diagnosed especially adults. As children have more support than adults with these allergies it's hard to get the adult point of view (P8-Adult-Allergy)*

These issues were also picked up by the perceived expert sample, who also highlighted the issue of limited support post-diagnosis as well as further emphasising the vulnerability of newly diagnosed individuals when seeking FH information:

*Those coming fresh to social media looking for answers after getting short shrift from their GP etc. are more likely to fall into the trap laid by self-styled experts (E2)*

Perceived experts expressed a broader concern that those newly diagnosed and new to the FH information exchanged on social media were at risk of misplacing trust, particularly when it concerned medical information relating to diagnosis:

*I fear that some 'allergy mums' look to other 'allergy mums' for expert advice – instead of just restricting themselves to seeking emotional support/food product advice e.g. when such allergy mums have used an unorthodox allergy test (e.g. IgG testing) and then promote it to other mums on an 'it worked for us' basis – alarm bells ring (E1)*

Overall, participants highlighted how traditional expertise from the medical profession was associated (and best placed) at diagnosis, but information about living with food hypersensitivity was often needed to supplement this. Expertise from those with experience was required and available through social media.

## **2. Expertise Acquired through Lived Experience**

The concept of expertise developing through experience featured strongly for both FH participants and perceived experts. Their view was that if you have lived with (or cared for someone with) food hypersensitivity for a long time then you are likely to have become expert in managing the condition, and therefore are more likely to be considered expert by others if they are aware of this:

*Having easy access to people who have already been through it who share this knowledge may mean people are seen to be 'expert' sources of information (P5-Adult-Coeliac)*

Both FH participants and perceived experts commented on how advice and support from the patient or parent perspective is a different kind of expertise, associated with day-to-day living with food hypersensitivity and not readily available from one's physician. This might include advice around managing a child's allergy at school, appropriate places to eat out, or guidance on eating-out in other countries. Users mentioned how social media can fill a gap in support provided by health professionals and highlighted how certain types of expertise require specific kinds of credentials. In terms of diagnosis and medical concerns – health professionals serve as the best sources of expertise, but when it comes to

managing the everyday challenges of food hypersensitivity those who have been through it hold additional and valuable expertise. Two quotes illustrate this concept:

*You can't get more expert than someone who appreciates and lives with the strains, stresses, worries of an allergy; and I feel that Facebook support groups provide this. Medical professionals know the "medical" bit but they don't deal with the day to day living (P1-Parent-Allergy)*

*I don't claim to be an expert on allergy but after almost ten years I'm pretty expert on parenting a child with allergies! (E4)*

Although the perceived benefits of information from those with experience was clear, there was also an appreciation that the information they provided was a function of differences in the ways that FH individuals approach their condition, or differences in their conditions (e.g., reaction severity, or types of allergy/intolerance). For example, those who have lived with a food hypersensitivity for several years and feel confident in their lack of reaction to certain food products may be less concerned about 'may contain' labelling or cross-contamination, compared to an adult or parent just starting out on managing their sensitivity:

*That there is a spectrum of people with different risk appetites. From those who like me eat may contain to those who are much more cautious (P8-Adult-Allergy)*

*Variations in the way some people may take 'risks' could create some confusion particularly to those who have just been diagnosed (P5-Adult-Coeliac)*

Similarly there was some acknowledgement that the experience of different reactions to the same allergen could be associated with information that was possibly inappropriate. One perceived expert – an experienced FH mother and not a medical professional – demarcated the boundaries of her expertise explaining that she would avoid handing-out health advice and rather point people in the direction of medical professionals:

*I share my own experiences but never give medical advice - I always refer to a doctor or official resource ... I would say I am an 'expert' parent in the sense that I have experience managing allergies day-to-day, and can advise on issues such as handling school and nursery (E2)*

Another expert praised FH parents on social media for recognising that their knowledge and experience may not always represent all FH cases:

*Some allergy mums/mum bloggers are absolutely fantastic – and understand science, and that their personal experience and case scenario cannot and does not represent the wider picture (E1)*

### **3. Discerning Traditional Expertise Online**

Although FH experience expertise was highly valued, there was a simultaneous recognition that one marker of expertise online was being a professional (often a medical professional). Some referred to experts they had met in an offline capacity (e.g., at conferences or events) or to the expert being their own or their child's doctor or nurse. Even the perceived experts considered this traditional expertise as the gold standard in food hypersensitivity online. In this context, there was a range of indications of professional expertise:



*Qualifications are important. I also look for those who are sceptical/avoid promoting unproven or discredited theories, tests or ideas (E1)*

Participants highlighted how using an official title or job description online increased the likelihood of attributions of expertise. Claims of qualifications were also unproblematically equated with having expertise. Those who working or associated with experts within the field were also considered more credible:

*To consider them an expert they would either be working within the field of allergy or involved in research (P4-Parent-Allergy)*

Thus, traditional sources of expertise formed a benchmark against which users sought to discern the credibility of social media information:

*When I look for advice I tend to compare it to other sources especially if it concerns a topic I am unfamiliar with. I use the NHS and Coeliac UK websites and printed materials as a basis to assess the information (P6-Adult-Coeliac)*

Benchmarking against traditional expertise was also evident in relation to social media information. This was seen to require greater scrutiny that could be done in relation to traditional materials which were more likely to have been checked and evidenced with scientific backing and/or recommended by qualified health professionals:

*Social media gives a platform to people who can say almost anything they like. When I was first diagnosed ... I noticed there were a lot of contradictory information. As I was given an information pack by the NHS I used this as level 1 point of reference and compared what I found on the internet to this so I could sort the facts from the hearsay (P6-Adult-Coeliac)*

*In a hospital setting you are less on guard for erroneous information. Social media you take more time on trusting people's opinions. That you have your guard up for bad advice. I think it's to do with the dodgy advice you sometimes see. That you have to have more of a filter on what you take and what you leave (P8-Adult-Allergy)*

Thus there were two pillars that buttressed those seeking credible information on social media: 1) information about the experience of living with food hypersensitivity, and 2) medical information. Social media support post-diagnosis was viewed as legitimately sought and provided in relation to experience of living with food hypersensitivity; though it was recognised by some at least that this may be inappropriate since experiences of food hypersensitivity varied greatly. The interviews showed reticence both to seek and give FH medical information on social media alongside concern about implications of not being reticent.

#### **4. Social Validation of FH Information**

Both FH and expert participants saw social media as containing and facilitating a supportive FH community; where users and the information they shared would be subject to a process of social validation that led to confidence in expertise and credibility.

News, research outputs or articles, as well as product recalls, recipes and advice on FH parenting was shared:

*I found these Facebook groups my lifeline. I use them to ask questions/advice allergy related to other parents/carers, people (including myself) post images of*

*"safe" food finds they/ I have found, we post petitions regarding allergies, studies regarding allergies and anything allergy related really (P1-Parent-Allergy)*

#AllergyHour, a weekly hourly discussion on Twitter around allergy matters, was considered to engender a sense of trust and a location of shared knowledge and experience:

*I often join in with ... #allergyhour where you can ask anything allergy-related and someone will have experience to share. There is a tremendous support network on Twitter. We very much see ourselves as an allergy family. (E4)*

Many of the members interacting within the community were considered as well-known to one another and this increased trust in the information being shared in that it was assumed members of the community would pick up any misinformation. If information was shared without challenge, disagreement or interrogation, this was considered as a validation and a product of vetting. A valued attribute of social media was being able to draw on a pool of advisors that could be trusted to weed-out misinformation:

*People like the collectiveness. They, subconsciously perhaps, believe if lots of other people are following/believing someone there is safety in numbers and it must be true (P3-Parent-Allergy)*

From the perspective of the perceived experts, the public nature of social media made them more able to respond to and correct inaccurate or misleading information:

*At other times, it will be a conversation in response to an issue or an article. (E2)*

*I think the perception is due to the fact I respond to tweets, correct factual errors, I am quite vocal (E3)*

Twitter communities and Facebook groups were seen to create a circle of trust, as well as a location of knowledge. Members of these social media communities were able to validate information or user-credibility if it had been vetted or accepted by other trusted users.

## **5. Cues to Expertise in Social Media Content**

The content of social media also provided cues to the expertise of the information source. From the perspective of perceived experts, both the relevance and novelty of their social media communications served as cues to their expert status:

*I don't tend to share material or news which is already 'doing the rounds' or has been shared widely already by others – I'll trust that my followers will already have seen it (E1)*

Expert information needed to be factually correct and the source identified e.g., from research journals, official publications, or trusted sources:

*I share from credible sources, but in all cases I read the article or link on the Tweet to make sure I am reposting something which is accurate, share interesting materials/facts/research (E3)*

*I like professionals with a passion for allergy who share evidence-based practice and keep updated on current research. (E4)*

Those who did not give evidence for their claims, or were promoting information users felt had no medical/research backing, was a clear marker for lack of credibility:

*[Researcher: In what way might you consider someone on social media as non-expert?]*

*People who claim they cured their allergy with simple lifestyle changes such as buying a salt lamp. Or people pedalling Vega tests which have no medical backing whatsoever (P4-Parent-Allergy)*

*People who don't know what IgE mediated allergy is or do not know the difference between lactose intolerance or CMPA. People who think someone with CMPA can have a little dairy and be okay (P3-Parent-Allergy)*

Whether users were seen to give appropriate and informative responses to queries was also a factor in judging expertise. However, drawing on and deferring to the expertise of other users and being open to feedback were also seen as markers of expertise:

*I also look for non-qualified people who defer to qualified people – always a good sign (E1)*

*The two bloggers I referred to in my previous responses tend to offer advice and welcome feedback rather than making statements they believe to be fact (P6-Adult-Coeliac)*

The option in many social media platforms to tag other users within posts and thus draw them into discussion, can support these practices.

Participants noted how connections with key FH stakeholders served to warrant credibility or expertise. These connections included relationships with associated charities, businesses or organisations:

*[The Facebook group moderator] talks directly to companies and gains assurances that certain products are completely nut free. This has led to the Facebook group being very popular as lots of people value [their] knowledge and the contacts [they] have (P2-Adult-Allergy)*

A mark of trusted expertise was brokering the content supplied by relevant external stakeholders, or to put this another way, the credibility of the content was enhanced when it was mediated by a trusted expert. However, there was also a view that people may attempt to align themselves with the official profiles of organisations in order to project a greater sense of legitimacy. The ability to include and link to others affords users who may not have expertise the possibility of enhancing their presentation of authenticity:

*The individuals have yet to demonstrate themselves in the arena, the audience have yet to form a view on whether they are credible and borrowing from the reputation of others can ease this (E3)*

Reputations for expertise were enhanced by virtue of the synergies between events, activities and relationships in the on and offline FH world. One expert noted how their presence as part of the organisation they worked for was likely to promote a sense of credible expertise:

*My position within [the organisation], I think it makes me a credible expert (E3)*

Another, alluded to how being known for their offline writing activities about food hypersensitivity was likely to be associated with perceived expertise; though the use of scare quotes for 'expertise' seems to indicate a recognition that this is one manifestation of expertise that may not necessarily be considered so by others:

*Obviously in researching and writing about these subjects for almost 20 years I have come to develop a particular 'expertise' in them (or aspects of them) (E1)*

We have seen that the affordances of social media - for example sending messages linking to other users - provided cues contributing to judgements about expertise. However as noted earlier simply sharing, liking or retweeting posts was enough to warrant claims of expertise:

*I look for accounts that interact with other people... I don't have a lot of time for accounts that only retweet other people's tweets (E4)*

The number of friends or followers a user has, visible to observers on Facebook and Twitter, can influence how others perceive their credibility. Linking back to the role of social validation, large numbers of following can imply that other FH users think they are worth following, thus serving as a cue to being a trusted expert:

*I think they became to be seen as an expert by blogging originally and then creating the website and Facebook group. This has then attracted a large number of followers and so then people consider it as expert/knowledgeable simply because of the number of followers and it becomes self-fulfilling (P3-Parent-Allergy)*

Others rued the possibility that people attended to others on the basis of the size of their following:

*I fear a lot of people equate lots of followers with knowledge or expertise (E4)*

*There is definitely fake authority imbued by someone who has tens of thousands of followers - for instance some celebrities or self-styled food gurus. Social media makes it easier for these people to have a voice. (E2)*

### Discussion

In exploring how those managing food hypersensitivity and perceived experts constructed meanings around expertise, we identified five themes. The first related to seeking advice surrounding the time of diagnosis; both FH participants and experts here were aware of the risks misinformation posed to those recently diagnosed. The second and third themes were associated with the location of expertise; either acquired through managing food hypersensitivity, or being valued as an expert in a more traditional manner e.g., through qualifications and professional knowledge. Both forms of expertise were valued, traditional expertise was most often unchallenged and taken-for-granted. The fourth theme demonstrated how FH social media information typically goes through a process of social validation; information is authenticated by other users through various affordances of social media (e.g., liking, sharing, commenting, replying). Finally, the fifth theme highlighted specific cues to expertise in social media content. Users were seen to attend to various markers of expertise in the FH realm, such as evidenced posts, connections with stakeholders and examples of deferring to other FH experts.

A key finding related to the concerns felt around the time of diagnosis for FH individuals and parents. Several participants across both FH participants and experts emphasised the importance of patients being able to get access to correct information, and that this was not always guaranteed when using social media. It is a paradox that social media provides important perspectives post-diagnosis about managing the condition –

perspectives that are not available through traditional medical channels often instrumental in diagnosis – and yet they cannot be unproblematically taken on-board – cues to expertise have to be found and interpreted. A medical background or qualification was a taken-for-granted factor in defining expertise in the FH area. However, in an absence of expert knowledge we see experienced FH patients/carers offering advice through social media about the day-to-day management of avoiding allergens. Research looking into internet use in patient-practitioner relationships has suggested that it would be beneficial for both parties if physicians used their knowledge to guide patients to approved sources [49], and this may help reduce anxieties surrounding users taking advice that may not correspond with medical opinion [50].

Social media was seen as providing a ‘treasure-trove’ of non-professional expertise [37], and highlighted the value placed on experiential knowledge or “situated understandings” [36]. However, participants were often clear to stress that they would frequently take information read on social media and consider it in-line with more official (e.g., NHS) materials, and their own knowledge. It is not simply the case that social media information is considered as credible as more traditional media sources [12]; social media information sometimes was used as a source on-top of, and to complement, traditional materials. This finding has also been seen in parents of children recently diagnosed with food allergy; parents wanted to quickly improve their food allergy health literacy, and utilised websites, journal articles, and online support groups to do so [23]. This time-dependent need for finer assessments of credibility and expertise is something we do not feel has been clearly demonstrated in the literature. Nonetheless, Metzger and Flanagin’s [12] observations around receiver characteristics such as past experience, reliance and prior knowledge are associated with this, but the focus here is more on experiences as a patient with food hypersensitivity as opposed to experience as a social media user per se.

Interview discussions demonstrated clearly-defined groups of FH users on various social media platforms (e.g., Twitter discussion participants, or members of Facebook support groups); supportive groups similar in nature to those seen by Broome et al [23], Greene et al [1] and Hamshaw et al [26]. Groups supported fellow users when information or advice was needed, and drawing on and deferring to the knowledge of others (even when considered an expert yourself) was considered a highly-regarded trait in someone supporting the community. A similar finding is presented by Lovatt et al [33], where use of caveats relating to one’s level of expertise was key to the development of trust in online breast cancer forums. Trusted familiar users (either traditional or experience experts) on social media were imbued with the ability to convey social validation, such that their reactions to other users acted as a benchmark of status or believability. In a similar way to Metzger et al’s [25] findings around the use of social information pooling (such as reliance on testimonials, reviews or ratings), social validation was conveyed here in FH users liking, sharing or commenting on posted messages, which demonstrates a form of rating for the

social media post itself. However, as suggested by the name, 'social' media perceptions of credibility can involve a much more social assessment – users can partake in two-way interactions, question authors of original content and ask advice of other trusted users. Thus, highlighting variance with typical observations relating to online credibility assessments associated with sources that are more static. The credibility of expert knowledge was also visible within social media sources such as Twitter discussion groups like #AllergyHour and Facebook support groups. Again, a factor that sets social media cues to expertise apart from those associated with typical web-sources, was the level of engagement expected to validate expertise e.g., by taking part in discussions, challenging misinformation and being available to comment – also noted as encouraging trust online by Lovatt et al [33] . This further highlights an affordance of social media, and a different way that expertise can be assessed online in a more hands-on fashion, due to communication capabilities of these platforms.

When considering research around the more static forms of online media such as websites and assessments of their credibility, findings may relate to social media, but the multi-dimensional nature of these platforms was not always seen to translate so easily here. Frameworks relevant to assessments of online information, such as those presented by Metzger and Flanagin [12] and Fogg et al [28] must now move further to account for the more complex nature of social media information. Users are assessing information that blurs the boundaries between source, message and author – does one assess the post itself or the platform it resides upon? Does the post come directly from the poster or has it been 'shared' or quoted from elsewhere? Although our findings highlight many credibility cues suggested by frameworks, such as information recency, accuracy, and relevance, as well as author qualifications/credentials, and absence of commercial motives – it is clear that social media does not fit these moulds well. Furthermore, platforms like Twitter offer users regular real-time updates (through hashtags) on matters of interest, but due to the limited (though recently extended) character capacity for tweets, credibility assessments are more challenging. Social media posts often do not have the space to give as much detail as a website might to suggest expertise (e.g., references, evidence, associations with reputable organisations). Recent research has shown that links to other sources of evidence in social media posts can promote a sense of credibility [18], however the extent to which this can be considered the same as references or evidence cited within online sources needs to be considered.

### **Limitations**

The interview sample was only a small number of social media users. However, it did consist of an array of FH concerns, from FH adults, parents of FH children, allergic and coeliac, as well as those who make a living around food hypersensitivity (e.g., writing about it, or working for support organisations). Several potential experts in the healthcare sector

on social media were targeted during recruitment, and although three individuals did give informed consent, they did not respond during our interview timescale. Thus, we were not able to consider this perspective.

The email interview approach gave participants a high level of control over their data; they could consider replies, gather information, and add to previous responses. This reflection time slows down the research process, and the lack of face-to-face contact means participants can more easily ignore or forget about questions. Reminders proved useful in some cases, but it was difficult to know when to start and stop prompting. Compared to face-to-face interviews, developing rapport with participants was more challenging due to lack of social cues. Participants had their own communication styles and we needed to adapt to these. Creating an interview schedule also presented additional issues. There is little opportunity to prompt participants, and confusing questions might lead to withdrawal. It was essential that questions were clear and likely to promote rich detailed responses. We also encouraged participants to be as detailed in their responses as possible. Thus, email and face-to-face interviews need to be viewed as distinct research approaches, each requiring a slightly different set of skills [51].

## **Conclusion**

This study has begun to unpick factors associated with constructions of expertise on social media, specifically in the area of food hypersensitivity. Traditional perceptions of expertise, such as formal qualifications, remain a taken-for-granted sign of expertise; however, it was acknowledged that those living with food hypersensitivity could be seen as expert through their lived-experience. There appear to be several cues to FH expertise on social media, including those typically anticipated such as factual and appropriate information, and evidence. The two-directional ('social') nature of social media highlighted how social validation cues, such as likes, shares, follows, comments, and communication with other reputable sources or users could aid in assessments of expertise in a different way to more static forms of online media.

Future work would benefit from exploring constructions around expertise on social media from the perspective of those considered traditional experts, and how experiential expertise is considered here. This study suggests that more support may be needed in relation to living with food hypersensitivity – especially following diagnosis. Exploring approaches that encourage the mutual support of traditional and experienced patients/carers in managing health-concerns (e.g., online) could prove valuable. Understanding the processes involved in social media information assessments could help support groups to design interventions to improve the information evaluation skills of social media users; such applications could prove vital as people increasingly turn to online sources for help and support in relation to their health.

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**Conflicts of Interest**

None declared.



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#### Abbreviations

FH: food hypersensitive



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## CHAPTER 8 - DISCUSSION

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Understanding the practices and preferences of social media use in relation to food hypersensitivity has been at the centre of the four empirical studies presented here. The research programme had two broad objectives: 1) to examine how and why FH-concerned social media users utilise social media platforms in relation to managing food hypersensitivity, and 2) to investigate how these users perceive the information available to them on social media with respect to both posts and those posting. Broadly, Study 1 and 2 considered use and practices, and Study 3 and 4 investigated perceptions of social media information and authors. In contrast to much of the previous FH literature, these studies gave equal attention to both FH adults and parents. Much of the existing research has tended to focus on the experiences of parents with FH children (Knibb, 2016). Use of social media for health-related reasons is on the rise (Parke, 2018). The benefits of access to other sufferers and the support this can bring has been clear to see in many studies (e.g., Brooker et al., 2014; Coulson & Knibb, 2007; Greene et al., 2010; Lovatt et al., 2017). Increases in user-generated content and the two-way communication affordances provided by Web 2.0 now mean that health information has become more patient/consumer-centred (Harrington, Elliott, & Clarke, 2012; Parke, 2018). Insights in relation to use of social media for health-related concerns will inform stakeholders tasked with supporting these groups, as well as advance our understanding of communication about health issues on social media more generally. This final discussion chapter will focus on five broad issues drawn from the results of the four thesis studies: 1) utilising networks, 2) mobilisation, 3) negotiating accountability, 4) constructing expertise, and 5) the influence of the social media infrastructure. In outlining these intersecting issues, contributions to knowledge made by this thesis will also be considered. Methodological contributions, limitations, future research and recommendations will be provided. A reflection on my position as a researcher and the research process itself is presented, and a final conclusion for the thesis.

### **Utilising Networks on Social Media**

All four studies shed light on the development and existence of networks of FH-concerned social media users. By networks, I refer to users convening and engaging with one another on platforms, for example, by sharing information and responding to posts; users are not just posting into a social media void, there is a level of interaction with and acknowledgment of others. Observations came from explorations of tweets utilising hashtags such as #AllergyHour, and alluded to formation of group memberships on Twitter during Studies 1 and 2. Study 2 showed how groups can form round a newly arising issue (e.g., the 100 chefs incident). Networks were evident in how users linked up with others in

supplying and seeking information. Study 2's exploration of users commenting on a FH-related news forum also illustrated that networks may exist outside of Twitter. Study 4 highlighted that several participants relied on and highly valued online support groups, such as those hosted through Facebook, further suggesting FH networks extend beyond the community seen interacting on Twitter (e.g., via #AllergyHour). Studies 1 and 2 saw FH users taking to social media to gain information and social support through asking queries and sharing thoughts and advice in relation to the FIR and 100 chefs' letter. Study 3 confirmed these gratifications for social media, highlighting that these two motivations for use were greater than for entertainment, which is another typical gratifying feature of media use (Go et al., 2016). Findings showed satisfaction of informational needs (e.g., through #14Allergens) and social needs (e.g., through #AllergyHour). These were consistent with conclusions relating to UGT and gratifications for use of Twitter and other social media; that these platforms are primarily used to gain information and interact with other users (G. M. Chen, 2011; Johnson & Yang, 2009; Sundar & Limperos, 2013). Findings relating to the presence of supportive networks (Studies 1-4) and their importance (Study 4) link with research showing that FH individuals develop a sense of belonging when interacting with other FH individuals (Barnett & Vasileiou, 2014). Social media was allowing these users access to supplementary FH networks unlikely to be available in the offline world (Fox, 2011; Naslund et al., 2016). Study 3 found that FH parents used platforms for social support to a greater degree than FH adults. This finding added to the established literature around the challenges and effects on quality of life when caring for a FH child (Begen et al., 2017; Broome et al., 2015; Gupta et al., 2008; Knibb et al., 2015, 2016; Knibb & Semper, 2013; Minson et al., 2016; Primeau et al., 2000), highlighting that support on social media may be required to a greater degree when caring for a FH child.

Study 4's findings showed that social media groups were a place that FH support was regularly sought, and some participants considered them a lifeline. Several insights reflected findings from Coulson and Knibb's (2007) exploration of the role of online support groups in coping with food allergy, such as the increased accessibility to supportive individuals. In Coulson and Knibb's research, the online group was seen as a useful venue for discussing coping strategies, and this very much chimed with observations from Study 4 around a desire for support in terms of day-to-day living with food hypersensitivity, for instance, advice from others with long-term lived-experience. In terms of accessibility, it is interesting to consider whether social media networks such as those seen in Studies 1, 2 and 4, provide additional support from a wider array of users due to the more public/broader use of platforms like Twitter and Facebook. In terms of #AllergyHour, FH organisations and stakeholders contributed to discussion and support during the FIR release, for instance, FSA representatives answered queries during organised #AllergyHour sessions, and others responded to questions posted through the #14Allergens hashtag more generally. Social media offered further opportunities for these kinds of interaction.

Coulson and Knibb (2007) noted participant concerns around the anonymity of members of online support groups and the degree of trust in posted information. It would be worthwhile to investigate whether additional information often provided via social media profiles (e.g., in bios) could counteract this consideration. In fact, participants in Study 4 alluded to the process of bio/profile checking, since this is where information relating to a medical/professional identity was likely to be displayed. In Study 4, concerns were felt around the time of diagnosis for FH individuals and parents who, as suggested by Broome et al. (2015), may wish to explore all avenues of information to learn as much as possible about the condition. This supports research considering the reasons behind increased levels of stress in managing food allergies, where lack of information at diagnosis increased anxiety in managing accidental allergen ingestion (Mandell, Curtis, Gold, & Hardie, 2005). It is a paradox that social media was seen to provide crucial perspectives post-diagnosis about managing food hypersensitivity but, as Study 4 showed, they cannot be unproblematically taken on-board; cues to credibility and expertise have to be sought and considered. One observation was how differences in types of hypersensitivity, such as different types of allergic or intolerant reactions, can complicate the applicability and appropriateness of information encountered on social media. Thus it is often the case that new information encountered is considered alongside more official (e.g., NHS) information available to the individual (Brigden et al., 2018).

### **Mobilisation via Social Media**

Not only did the FH social media network act as a venue for information and social connection, it also played several mobilising functions. In Study 1 both organisation and individual users utilised the #14Allergens hashtag on Twitter to spread the word about the new FIR. Organisations employed individual users to promote and snowball information, in this case information of benefit to the FH community (in terms of being able to eat out safely). Study 1 also demonstrated how users can piggyback on to social media topics (and related hashtags) in order to promote adjacent issues, for instance, the desire to restrict or change may contain labelling was brought to the fore by users, despite these forms of labelling being outside the FIR remit. In Study 2, both the FIR release and 100 chefs debate were piggybacked by the author of the original 100 chefs article itself, and several subsequent social media commenters, to promote anti-EU sentiment as the FIR was to be enforced within the EU.

The creation and adoption of hashtags on Twitter highlighted another way that users can be mobilised around a topic or issue. This was first seen in the creation of the #14Allergens hashtag, as a way for the FSA to promote and anchor discussion around the FIR release. In Study 2, users taking part in #AllergyHour created new hashtags to link up their efforts to debate the chefs' opposition to the FIR (e.g., #100cluelesschefs, and #100chefs). Fairness of access in relation to eating out with a food hypersensitivity was a



key motivation for taking part in social media discussions around the FIR (both on Twitter and via news article comments forums). By mobilising users around an issue using specific (e.g., #100chefs) and pre-existing (e.g., #AllergyHour, #14Allergens) hashtags, users were ensuring that the network were able to see and respond to the issue. Through commenting on the 100 chefs news article itself, FH-concerned users developed a mobilising group outside of Twitter, taking charge in discussions, and encouraging contributions from like-minded users. Contributions were minimal from opposing standpoints; this mobilisation may have reduced the likelihood of those with opposing ideas getting involved in discussion (Flanagin, Hocevar, & Samahito, 2014; Ling et al., 2005). Identities were additionally used to mobilise and strengthen support here, where individuals emphasised the medical nature of a FH identity in order to justify the need for the FIR (i.e., that individuals could suffer fatal consequences if chefs did not provide information about food content). Thus, further restricting the likelihood of counter arguments.

Mobilisation was also partly achieved by calling out others on differing views or specific issues (Kietzmann et al., 2011; Sunstein, 2018). This was seen in Study 1 and 2, for example, tagging an account to highlight disapproval with something (e.g., not adhering to FIR or a misinformed opinion). Participants in Study 4 highlighted how users might call-out individuals posting misinformed FH information, especially in relation to medical concerns. They suggested that individuals would tag more expert users to draw them into discussion. This strategy could help restrict the opposing or misinformed argument via a public “outing”. The use of anchoring hashtags may also increase the likelihood that other like-minded users would rally to the cause. Both the process of tagging other users and promoting discussion through hashtags, such as broadcasting hashtags like #14Allergens and discussion-style hashtags like #AllergyHour, demonstrate how these features of platforms can be utilised to mobilise in different ways. These examples also highlight how a platform can be utilised in a different way to that originally intended by its developers. This links with research that has demonstrated various alternative uses of Facebook, such as a form of coping strategy for starting university (Madge, Meek, Wellens, & Hooley, 2009), and a way to re-connect with past friendships and family as an adult (Subrahmanyam, Reich, Waechter, & Espinoza, 2008).

### **Negotiating Accountability on Social Media**

As shown above, tagging other social media accounts can be a way that users call others into discussion or call them out. In relation to this, the issue of negotiating accountability became apparent in users requesting information or evidence in relation to FH issues. Twitter was used during the FIR release by users to ask organisations, such as the FSA, about who is accountable in terms of adhering to the allergen regulations. This highlighted a key benefit of social media in managing health concerns, since users could get timely responses from larger organisations that were likely to be useful to other users

with similar concerns, as has been seen in research surrounding risk events (e.g., Comrie, Burns, Coulson, Quigley, & Quigley, 2018; Gaspar et al., 2014; Regan et al., 2015). Study 4 also demonstrated how larger organisations or those with expertise in an area such as food hypersensitivity are able to respond to and monitor misinformation on platforms in a real-time interactive manner. Individual users, who may be sharing incorrect or misleading information, can be suppressed by more authorised bodies. In this sense, social media obscures the barriers between organisations and consumers, and the possibility of two-way communication through Web 2.0 offers both parties additional opportunities (Kaplan & Haenlein, 2010; Kietzmann & Canhoto, 2013; Kietzmann et al., 2011; Kietzmann, Silvestre, McCarthy, & Pitt, 2012).

Not only can platforms like Twitter allow users to question or hold users to account in a public online setting, in Study 2 examples of accountability being discussed in relation to responsibility for FH risk-management when eating out were also seen. Rather than identifying individual users to challenge, this highlighted how both the news comment forum and Twitter platform could be used to debate accountability of the wider groups (i.e., that of chefs/food businesses, or FH adults/parents). Users were able to debate the FIR topic and position those participating in the discussion, for instance, as FH individuals who should take more responsibility for checking if allergens are in dishes, or as businesses/chefs who need to provide information so that FH consumers can make these decisions more easily. Thus, the interface of social media platforms can allow users to utilise two-way communication, account tagging and hashtag anchoring to direct or gain attention in a specific way; either directing attention to an individual or a specific discussion. Social media allowed FH users to become empowered in managing the potential repercussions to their quality of life, for example, from the 100 chefs criticising the FIR. Consequently, social media may empower FH individuals in the same way that the FIR itself has helped empower FH consumers when eating out (Begen et al., 2018).

### **Constructing Credibility and Expertise**

The terms credibility and expertise are often used interchangeably. Linking to literature in this thesis, expertise is one dimension of credibility and may be a basis for which someone is perceived as credible, for example, through competency and knowledge (Hovland, Janis, & Kelley, 1953; McCroskey, 1966). Information may be considered credible if of an accurate, authentic, and believable nature, and logically will have originated from a credible individual or organisation who possesses appropriate expertise (Appelman & Sundar, 2015; Appelman & Sundar, 2016). Trustworthiness is considered a second primary dimension of credibility (alongside expertise), in terms of dependability and meeting an audience's needs (Ferguson, 1999). Thus, expertise, trust, and credibility are considered interconnected in the pursuit of exploring perceptions of credibility and expertise from FH individuals.

Study 4 highlighted that meaning construction around expertise was complex and multi-faceted and perhaps even more so when focusing on social media, since professional credentials or experience are not always so obvious (British Medical Association, 2017). Thus, there were many considerations and strategies employed to decipher expertise. In terms of food hypersensitivity, a professional or medical background was highly valued and taken for granted as a marker of expertise. However, experience living with food hypersensitivity was also valued in relation to expertise in day-to-day FH management. In line with research by Metzger and colleagues (e.g., Flanagin & Metzger, 2007; Metzger & Flanagin, 2015; Metzger et al., 2010), it was not just about the “identity” of the individual users posting on social media, but also the traces of online activity they left behind that helped other users decode expertise. The level of engagement from and with potential experts (e.g., in the FH network), whether information posted was known to be factually correct, if posts were supported by evidence (e.g., from larger FH bodies or with external links or research), as well as relevance to the FH network, were all factors taken into account.

In Study 4, expertise was not always considered to involve knowing everything about a topic, but demonstrating the limits of one’s expertise and deferring to or drawing on different expertise (e.g., medical knowledge) from other users. This was a characteristic also found to develop trust in users of online forums (Lovatt et al., 2017). These insights offer a conceptual framework for cues to expertise on social media. Insights may inform the development of a theory of social media expertise, since these considerations are likely to be applicable more broadly, as they do not specifically rely on FH-only information. However, further research would be needed to assess this. These examples also link with UGT, since it appears that when gratifying a need for medical information users logically wish to turn to those with medical expertise, however when motivated for social support in relation to actually living with food hypersensitivity users turn to those with lived FH experience. This supported a need to look further than general use of media, and consider first the context for that use. Moreover, findings from Study 4 relating to the use of evidence and engagement linked with objectives relating to credibility assessments of Twitter information in Study 3. Results confirmed that the addition of a link in tweets could improve credibility ratings, which may link with assessments of expertise and potential experts evidencing their posts. Study 3 did not see an effect for markers of engagement from other users (likes and retweets) despite Study 4 participants suggesting such factors may have an effect on perceptions. This brings the issue of what constitutes social validation to the fore, and this will be discussed further when considering the social media infrastructure.

Information and potential expertise can be moderated by social media communities, such as the FH network seen in Study 1, 2 and 4. Social media platforms that allow tagging of other users and the inclusion of additional information (e.g., links) can offer options for assessments of expertise through engagement. Users can directly ask other users about a

perceived expert, or direct their message to the expert themselves. Alternatively, links in posts can be used to follow-up on information posted by perceived experts, as a way of validating information outside of the social media platform, as has been seen in individuals seeking further information during crisis communication (Austin, Fisher Liu, & Jin, 2012). Thus, assessments may be made before or after engaging with the information itself. These strategies stand in contrast to information seeking via more static webpage browsing, where direct communication with or about the author may not be possible (Metzger & Flanagin, 2015). This is perhaps why in Study 4 social media was seen as a useful place for FH support especially when first diagnosed. Concerns about the vulnerability of newly diagnosed individuals was apparent from Study 4, but if users are encouraged to ask and assess information they encounter they may be empowered in their day-to-day FH management. Comparing social media information with official information/documentation (e.g., following NHS diagnosis) was seen as a useful strategy for some when assessing expertise, in line with findings by Brigden et al. (2018). This may imply that those typically considered expert without challenge (e.g., those in the medical profession) could make efforts to suggest additional information management strategies to patients (such as those considered above). Professionals could even be in a position to recommend networks they consider less risky for newly diagnosed individuals, for instance, those managed by experienced FH-concerned individuals like #AllergyHour or specific Facebook support groups. There may even be scope to develop a tool or platform that allows users to be verified in some way in relation to providing FH support, or availability of a list of confirmed experts that is managed by appropriate groups or stakeholders. Insights seen here build on literature around health information seeking online, since consideration is also given to how assessments are made by health-concerned users in various ways via social media platforms. Findings in relation to a desire to gain substantial information about a hypersensitivity following diagnosis link with Broome et al.'s (2015) research with parents of newly diagnosed FH children, and further illustrates social media as one of the key information sources.

### **The Influence of Social Media Infrastructure**

Some of the findings outlined in this section will be familiar to those immersed in the social media realm of research. However, in the context of a health issue like food hypersensitivity, several considerations of the infrastructure of social media merit attention. Study 1 illustrated how, in the Web 2.0 age, organisations involved in regulation provision and individual users can work together on a common cause like the FIR release (Waters & Williams, 2011). However, larger companies (e.g., food retailers, businesses and venues) must also be ready to deal with complaints and requests in an appropriate and timely manner especially in a public space like Twitter (Johnen, Jungblut, & Ziegele, 2017; Kietzmann & Canhoto, 2013). Individual users in Study 1 were seen to query the provision

of allergen information to food retailers and restaurants. Both the FIR itself and availability of messaging larger companies publicly via Twitter had empowered FH-concerned individuals. Social media also offered organisations and stakeholders the opportunity to ask how the FIR were being implemented across the UK, and affordances like these are likely to have several benefits for those tasked with supporting policy implementation such as this. Organisations and stakeholders are able to gain a better understanding of those they support, but also engage with them more freely across social media. For both individuals and organisations hashtags can be utilised to organise conversation, debate or useful information. Here I considered this on Twitter, but it is the case that many other social media platforms now also employ hashtags for similar reasons (e.g., Instagram, Facebook and Pinterest). New hashtags were created to spread the message of the FIR as well as anchor debate around the 100 chefs incident. Consistent hashtags were also seen in #AllergyHour for organised discussion as well as those associated with FH topics like #dairyfree and #glutenfree that might be utilised to compile numerous posts around a specific FH concern. However, in terms of Twitter the limit of characters in posts may restrict the communication possibilities of this platform, since the ability to add additional related hashtags may not be possible at the same time as getting the desired message across. At the time of conducting this research Twitter posts were restricted to 140 characters. This has since increased to 280 characters (Sulleyman, 2017), but is still relatively constraining and may explain why participants in this research also used other social media accounts for FH-related concerns. Linking back to Study 3, the effect of tweets with added links may suggest a willingness to add additional detail to posts as a factor in credibility assessments.

Lack of verification systems on social media were highlighted as a concern by both FH-concerned individuals and those seen as FH experts during Study 4. Support groups might be moderated by more experienced users, but when posts are disseminated publicly, as is often the case with Twitter, moderation becomes more challenging. Users need to employ additional verification strategies, such as asking queries about information or following up links and additional information (such as profile descriptions and credentials outside of social media spaces). However, observations across the three qualitative studies here have shown that the FH social media community themselves may act as moderators of information posted, for example, in relation to the scope of the FIR or the nature of diagnosed hypersensitivity. Research exploring Twitter use during the 2011 London riots illustrated how citizens can be seen to take on this kind of active role, supporting the police and each other in identifying useful and relevant information (Panagiotopoulos et al., 2014). Moderating action by users is likely to be even more successful if posts utilise hashtags in their discussions/posts specific to the issue (Panagiotopoulos et al., 2014). The creation

and use of the #14Allergens tag in relation to the FIR release, and continued use of #AllergyHour, are examples of this approach in the FH network.

In Study 3, likes and retweets (shares) present on a tweet were proposed as a potential cue to credibility. However, findings did not show an effect for these social validation cues. This poses the question: what constitutes social validation? Previous research has shown that likes on comments do not influence consumer attitudes towards the contained information (Peter, Rossmann, & Keyling, 2014; Winter, Brückner, & Krämer, 2015). Furthermore, insights from Study 3 did in fact chime with the expectations of ELM in terms expected kinds of perceptual route and level of prior knowledge (Petty & Cacioppo, 1986). ELM postulates that more informed populations will take a central processing route, since the FH-concerned users had a good understanding of the topic they were likely scrutinise message content, and not need to rely on the peripheral likes/shares information. The effect of cues such as user-comments have been seen to affect perceptions of posted information, for instance, via reviews and testimonials (Flanagin & Metzger, 2007; Metzger & Flanagin, 2015; Metzger et al., 2010). Written comments, as opposed to 'like' metrics, may have a greater influence on audience perceptions due to the added personal content from other individuals (Zillmann, 2002). This belief is supported by Waddell (2017), who showed a lack of effect for tweet likes, but increased salience of validation from user comments. Some research has shown that, when comments demonstrate both positive and negative opinion, likes can subtly effect perceptions and intentions (Hilverda, Kuttschreuter, & Giebels, 2018). Moreover, in the absence of additional written comments, users have been seen to switch attention to simple rating metrics (Amblee & Bui, 2011). FH-informed participants in Study 4 still considered assessment of likes and shares to be a strategy for assessing FH-related information. This raises the consideration of whether social validation may in fact be mediated by the users who validate the original post. It may not be enough to know that a post has been liked or shared by others, one needs to know if it has been authenticated by those they initially trust (Flanagin, 2017; Metzger et al., 2010; Sillence, Hardy, & Briggs, 2013). Future research would do well to develop an approach that can test features such as additional comments on posts and the effect of known followers validating posts within individual social media networks.

One further issue with social media platforms, such as Facebook and Twitter, is how the structure and algorithms of these sites can affect what and how a user sees certain information, for instance, whether a post appears on their feed in terms of anticipated relevance or the time it was posted (Sunstein, 2018). Brooker et al. (2017), for example, illustrated how the technical infrastructure of a news commenting platform meant that certain arguments and discourses around health and weight-gain were reinforced or repressed within the limits of the platform itself. Thus, several strategies may need to be employed by users to assess information on various kinds of social media, since alternative views or posts may not be apparent, or useful information buried within numerous social media posts. Further research is needed to understand the effect of these technical social media structures.

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## Theoretical Contributions

Several theoretical contributions have been made through the reported empirical studies, either in terms of confirming theoretical concepts or extending them. Turning first to UGT, this research took a more detailed look at use and need gratification on social media, specifically in relation to a health concern. Observations highlighted that information and social needs appeared to be most important in relation to food hypersensitivity on social media. These were consistent with conclusions relating to UGT and gratifications for use of Twitter and other social media more broadly; that platforms are primarily used to interact with other users and gain information (G. M. Chen, 2011; Johnson & Yang, 2009; Sundar & Limperos, 2013). Users here were primarily concerned with finding information relevant to managing food hypersensitivities as well as seeking social support through other users in similar circumstances. Findings suggest a need to explore context of use further and extend UGT beyond the broad/general understandings of media use. Thus, this research has highlighted a need to consider other contextual applications of UGT and social media, e.g., whether findings here relate to other health concerns, or how gratifications are organised in relation to other dissimilar contexts.

When considering Positioning Theory, findings highlighted how the processes identified by this perspective align very well with the kind of interaction that occurs on social media, for instance, the assignment of roles and rights, and management of online identities. From a review of the literature, it appears that this is likely to be one of the first pieces of research to consider Positioning Theory in the context of social media. Moreover, the alignment of Positioning Theory and analysis of frames, as seen in Study 2, suggests a potential extension of the theory since frames appeared to act as a useful resource for users in the performance of positioning on social media.

Observations relating to the processing of social media information confirmed certain aspects of the ELM. For instance, the idea that individuals who are better informed about a topic are more likely to process information centrally was supported by findings in Study 3. We can assume FH participants (or parents) were knowledgeable about the topic presented, and this may be why the central experimental manipulation (the inclusion of a link) influenced credibility and persuasion ratings, as opposed to the peripheral information provided by likes and retweets. To more systematically confirm the model, a comparable experimental manipulation would need to be conducted with participants who were less informed about the stimuli topic. This research has begun to explore the kinds of processing at play in relation to social media information, but future research may wish to explore various features of the social media infrastructure and how these relate to the way that information is processed on platforms.

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### **Methodological Contributions**

As has been alluded to in the individual study chapters, research with social media has predominantly focused on both a broad consideration of platforms (e.g., sampling, validity, and ethics) and quantitative “big data” insights sites can afford (Brooker et al., 2016). In contrast, the focus of this thesis has largely been on smaller-scale qualitative explorations of the experiences of individual social media users. This is not to suggest that big data approaches are not important and beneficial to this area of research, but that an additional focus on the qualitative data provided by these platforms permits researchers to further consider human aspects of interaction with and on social media. The studies that utilised Twitter data offer a tested approach to qualitative analysis of tweets. I have demonstrated that by refining datasets using specific timescales, removing retweets/copies, and also focusing on specific networks of interest (following initial observations) such as those defined by hashtags, Twitter data can be analysed in a manageable and comparable way to that typically done with traditional qualitative data such as interviews or focus groups (Braun & Clarke, 2013; Braun, Clarke, & Gray, 2017). Furthermore, the use of email interviews here may also provide added guidance on conducting studies with diverse populations, such as those typically found on social media (Gibson, 2017).

Although much of the research presented here has focused on Twitter, it has also investigated use of comment forum platforms, and considered use of other social media sites through self-reported use measures and interview discussion. Where possible I have attempted to highlight areas that may be specific to certain platforms (e.g., hashtag discussion groups on Twitter) or perhaps have more broad implications (e.g., inclusion of links or primary reasons for using various platforms). The approach to considering different types of social media data in parallel was seen as a novel aspect of this research, where tweet data was considered alongside the more lengthy news article online comments. Furthermore, Study 2 also considered these kinds of data in relation to the news media articles themselves, and how certain aspects such as positioning played out across the different forms of media. Such an approach is likely to become both useful and established as the social media world continues to integrate various forms of media in its presentation (e.g., hashtags during television shows, requests for commenting during radio shows, and use of links to external sites on posts). In sum, experience and guidance surrounding: treatment and analysis of qualitative social media data, the integration of various forms of online media data during analysis, and use of online research methods such as email interviews, are seen as the main methodological contributions of this thesis.



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## Limitations

Specific limitations were considered for each of the empirical studies, but here more broad thoughts are developed in relation to the work as a whole. Primarily, considerations here relate to the population under observation, generalisability, and the applicability and reliability of the research methods used and associated data. One issue relates to how far all findings are valid beyond the topic of food hypersensitivity. FH individuals may have specific health needs and motives for using social media, and thus the extent to which their patterns of social media use can be translated to other health concerns is open to debate. Some findings here, such as the effect of link-presence or the lack of effect of likes/shares may seem applicable to a general social media arena, but requires further investigation. On the other side of the coin, a focus on social media users specifically may not demonstrate the values of all FH individuals. Some FH individuals may not feel social media offers them much in the way of FH management or support, and this research does not consider this perspective or where these individuals do get FH-related information.

The research here that utilised actual social media data primarily relied on Twitter data. This was partly due to the ease of access that Twitter provides due to the public nature of the platform. However, Twitter also had the benefit of providing a multitude of individual perspectives through numerous extracts of discussion/debate as well as additional meta-data, such as accompanying hashtags and mentions of other users/accounts (Ahmed, 2017; Brooker et al., 2016; Vidal et al., 2015). Consideration of other platforms may have provided alternative insights. Facebook was still one of the most universally used platforms in relation to food hypersensitivity (as seen in Study 2), and although I consider use of Facebook groups from the broader lens of expertise in Study 4, I was not able to directly consider this venue for information and support. Furthermore, although the focus on the FIR allowed for observation of the FH social media network at work on Twitter and via online news article comments, it could be said that an event such as this does not demonstrate typical use of social media for FH reasons. However, there were advantages in how a wider, natural and unsolicited sample was considered, perhaps helping combat typical arguments relating to generalising qualitative findings to the wider population (Larsson, 2009; Lewis & Ritchie, 2003; Robinson, 2001). In fact, it has been suggested that study of a health-related phenomena without the inclusion of unsolicited narratives, such as those provided online and via social media, may feel incomplete since they provide such a unique and valuable contribution in addition to self-reported approaches (Robinson, 2001). The qualitative email interview approach taken here suffered from the same limitation often associated with qualitative work: a small sample size. However, these interviews did draw on an array of perspectives (adults, parents, different sensitivities and different areas of expertise) and insights were also considered as a basis for future theory around social

media expertise and not as generalizable behaviours/practices (Yardley & Bishop, 2011). Overall, qualitative findings here have provided rich data that has shown detailed patterns of meaning, both from participant accounts and unsolicited social media narratives. In establishing the reliability of my findings, I have reflected on my research position, linked findings to related research, and grounded interpretations in the data itself (Madill et al., 2000).

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### **Future Research Considerations**

Several considerations above relating to the generalisability of findings and the need to understand more about the influence of networks on social media as well as the effect of technical features of platforms on users, have all alluded to the need for further research. Findings relating to the credibility of Twitter posts as affected by additional links and not by likes/shares with the FH population, suggest a need for extension to social media users who are assessing information they are less familiar with. This would allow clarification of whether the ELM was in fact at play in terms of peripheral versus central processing. This would have broader implications and potential for directing social media communication practice by organisations and stakeholders. If links are seen to still increase credibility and persuasiveness on a less-familiar topic, inclusion of links in dissemination would prove useful across the board. On the other hand, if less-informed groups are seen to be better persuaded by the social markers of likes/shares then stakeholders would know to adjust their communication practice depending on their target audience. Simply the presence of links accompanying tweets increased rating of credibility and persuasiveness in Study 3. Research may wish to explore to what extent these links would have been accessed by users, or whether the link web-address or associated website content would play a role in perceptions. Understandably, insights would have wider reaching implications beyond health information broadcasting such as government, marketing, and media communication. Insights from Study 4 demonstrated that FH users did value the sharing of information within their network as a marker of potential expertise. As previously proposed, a study that could explore the validation of certain social media posts as part of an individual's existing network could prove very interesting, for instance, if trusted followers share or like a post does this constitute a taken for granted level of reliable content. Furthermore, our understanding of the way that technical features of platforms may affect what and how users see and respond to information on social media could be advanced here, for instance, how posts prioritised in a user's feed could influence how they perceive certain information or issues.

To broaden the implications of this research further, exploring whether insights relating to FH expertise on social media translate to other areas of interest would be valuable. It may be that the strategies and considerations used by those who took part in this research are utilised more generally by social media users, and it may be that a theory

of expertise on social media could be developed and later tested. Furthermore, a noted limitation of this research into expertise was the lack of perspectives from traditional/taken-for-granted experts, such as those working in the medical profession. Perspectives from this population could still be sought to help build a better picture regarding perceptions of expertise around a health issue on social media. Gathering additional perspectives in this way may then pave the way for additional support or interventions to help those with health concerns like food hypersensitivity manage their condition, for example, seek appropriate information and know how to assess it on social media. Interventions in relation to managing food allergy have seen positive benefits on quality of life for individuals and carers (see Knibb, 2016), and similar interventions incorporating online information management may prove beneficial here also.

Finally, there has been much research into quality of life measures in relation to managing food hypersensitivity. In order to unify both insights from this body of research and that presented here, it would be beneficial to consider the impact social media has on quality of life and living with food hypersensitivity. The Food Allergy Quality of Life Questionnaire considers aspects of FH management, such as the troublesome nature of missing information or information that is a challenge to obtain (Flokstra-de Blok et al., 2009). There may be scope for an extension of this measure to consider how different information sources are perceived in relation to FH management and their effects on quality of life (e.g., “how troublesome do you find it, because of your food allergy that you need to seek information/social support for your allergy elsewhere, e.g., online/via social media/support groups”). Participants in Study 3 stated that they used two or more platforms for FH reasons and that these were primarily for information and social concerns; Study 4 participants highlighted that for both parents and adults social media sites often served as a lifeline, especially following diagnosis. Thus, these key findings could be considered in relation to quality of life measures and the effects of social media use during different stages of FH diagnosis and management.

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## Recommendations

In terms of recommendations from this research, there are several considerations that those supporting individuals with health-concerns like food hypersensitivity should consider in relation to social media use. Stakeholders and associated health organisations should consider the wealth of information and knowledge that can be gained from investigating and engaging with the online communities around a health concern. It seems the case that the vast majority of those involved in support accept that social media has become an everyday part of life for many, and with the number of users increasing and platforms offering more and more utilities for their users we are likely to see this use grow further (Fox & Duggan, 2013; Parke, 2018). Initial research here highlighted how the use

of hashtags on platforms like Twitter can be utilised to anchor discussion as well as highlight certain pieces of information and topics to already existing hashtag groups. Organisations should bear this in mind when trying to create a snowball effect on information they wish to share by considering appropriate tags and networks (especially when considering the potential limits of characters). Furthermore, Study 3 highlighted the potential credibility and persuasiveness boost provided by adding links to external sources in Twitter posts. Adding links to posts may not only benefit the perception of the post but offer the additional benefit of providing traffic to a site the organisation wishes users to visit, and reduce the need to add all the information into the post itself. Insights taken from considerations of social media expertise highlight certain principles stakeholders may wish to portray to their following, for example, timely, relevant and evidenced information, but also the ability to engage with one's audience and not just broadcast information across platforms.

Certain factors can also be considered to benefit individual users of social media when considering health concerns. This centres on a more developed relationship between patients and practitioners in terms of managing information provision. For those who are not social media savvy, social media training and advice would be beneficial in terms of knowing what to look out for and what to be aware of when utilising platforms for health-related reasons. Practitioners, those considered traditional experts here, might wish to work with those who are considered influential on social media in terms of the specific health concern and direct patients to more vetted examples of accounts, or groups and forums managed by users that the practitioner trusts. Observations from Study 4 illustrated the importance of those with a non-medical background avoiding dispensing medical advice. Practitioners would do well to highlight to patients following diagnosis that although social media can be very useful in relation to the day-to-day advice on managing health concerns, information of a medical nature should be provided by those with appropriate qualifications, and certainly discussed with a doctor or nurse before any action outside of the original diagnosis guidance is taken. The opportunity to develop a tool allowing verification of users could solve some of the concerns users felt in relation to FH support on social media, much like the Checktrade platform used by UK consumers to find reputable tradespeople and businesses<sup>11</sup>. Users could be verified through certain characteristics, such as membership to official FH organisations or charities (which would assume a baseline level of FH knowledge), or via answers to specific personal descriptors, for instance, level of diagnosis, years since diagnosis, type of hypersensitivity. These signposts may help FH individuals make a decision as to whether the information posted by these users is relevant to them. Availability of a list of confirmed experts managed by appropriate groups or stakeholders, potentially vetted through the means suggested above, could also be highly beneficial to FH individuals (especially those newly diagnosed).

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<sup>11</sup> See <https://www.checktrade.com/Consumer/>

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## Personal Reflection

Here I aim to reflect on my own position and how this has related to the research reported in this thesis, as well as reflections on the research process itself and how this had a bearing on me.

Before I started researching food hypersensitivities I had some experience of how it is to live with such concerns, since my mother had been avoiding gluten-containing cereals due to coeliac disease for several years. As a family, we were aware of the issues with eating out in terms of checking and pre-assessing venues, and negotiating the menu with waiting and kitchen staff. As such, I did not enter into the research process naïve to the position of my participants or topic of focus. More recently, approximately three years into the project I received a positive antibodies blood test result suggesting potential coeliac disease. However, there were complications with this. I was initially told by my practice that my blood tests results were clear. At this time, I had just moved back home, and since it was only myself, my partner and my mother living under one roof we decided that it made sense to only have gluten free food in the house, for simplicity of meal planning and so on. From working with Coeliac UK, I was aware of the importance of continued gluten consumption until a diagnosis is finalised (e.g., via gut biopsy) but since I had (supposedly) been given the “all clear” by my doctors, I was happy to live a predominantly gluten-free diet whilst temporarily living back home. On visiting the doctors around 6 months following my supposed negative blood test, I was told during an unrelated appointment that my coeliac test had come back positive. I had been given the incorrect information by the practice initially, and since I had inadvertently stopped consuming gluten between these events I would need to start consuming gluten again before restarting the diagnosis process. This information came at the time of starting a new job and finalising the write up of my thesis, so I was reticent to potentially make myself unwell. Thus, I am currently living a gluten-free diet, but have yet to complete the stages of a full diagnosis. During the final stages of this research I became very familiar with the issues (and especially the stigma) involved in avoiding certain allergens. Consequently, I developed a greater sense of connection to my participants, but did not have the formal diagnosis many rely on to legitimise their condition. This has actually been a very frustrating phase in my life, and coupled with the stress of work and the PhD, things have not always been easy.

It is worth reflecting on the fact that this research was funded by the Food Standards Agency, who were responsible for implementing the food allergen legislation that much of this research is based around. It would be dishonest to say that this factor has not been considered during the PhD, especially at the early stages of the research, when I was very much involved in discussions with the agency (e.g., around release of the legislation). Concerns such as “would this be useful to the agency?” or “what would the agency think

about this?" have played on my mind, but as the project progressed I made it a goal to take ownership of my research, and report insights that are grounded in my data and participants' own accounts (Madill et al., 2000).

This research has required me to look across a variety of disciplines including psychology, sociology, medical research, and computer-human interaction. This has meant I have needed to develop a broad understanding of several aspects of my work and integrate perspectives when designing my studies and considering gaps in the literature. I have also worked with researchers from different disciplines (psychology and the medical sciences) as well as FH stakeholders, who may look at research from quite different standpoints, for instance, for useful measures or correlations to predict outcomes that may not necessarily link to previous theory or literature. Although this has proved challenging, I have also had the opportunity to hear opinions on my research from an array of perspectives, thereby hopefully increasing the accessibility of my work.

In terms of the social media realm, again, I understandably did not come to this research without a comprehension of different social media platforms and their uses. Social scientists would consider me a member of Generation Y; the generation shaped by technology, and who are happy to share their life with others online (Wallop, 2014). I used various forms of social media in my early teens (MySpace, Bebo, and Facebook), and use Facebook, Twitter and Instagram regularly. Social media, therefore, has been part of my everyday life for a long time; the importance I put on the uses and benefits of social media may vary in comparison to others. From my own position as a social media "insider" I may, for example, overestimate the representativeness social media brings to my research topics. Moreover, my own social media practices might even influence the kind of information I am comfortable working with, or drawn to initially.

Finally, doing a PhD is generally considered to be quite stressful (Toews, Lockyer, Dobson, & Brownell, 1993). I have loved the experience, but it has certainly been one of the toughest things I have ever done. You spend a lot of your time working (what feels like) alone, especially since you are working on a project often very different to other researchers. You also feel very responsible for your research. You are the one who has immersed themselves in the literature around your work, and although you are confident you know almost anything you need to know about your research area, you will always feel like a slight imposter as you move from the identity of a student to a researcher. I have felt quite responsible for my PhD success and have been reticent to speak to very large audiences about my findings. However, through the process of peer-review and publication I know that my work is of value.

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## Conclusion

This programme of research has shown that social media is a useful tool for managing food sensitivities as a FH adult or parent. Platforms are used for debate and discussion around FH issues, and considered as a source of information and social support. Twitter was specifically seen as a platform that could facilitate communication and accessibility through the platform's public nature and hashtag capabilities. Support was likely to be sought shortly following a FH diagnosis, but conversely was considered a period when individuals (or parents) were most at risk of gathering incorrect information on social media. Validation of information here involved more than how often a post had been liked or shared. The FH social media network were seen to moderate information by discrediting inaccurate sources and calling-on those with expert knowledge when needed. Social media information could be considered alongside official advice given by medical practitioners and/or organisations as a way of authorising content. Additional links within Twitter posts were seen to increase ratings of message credibility and persuasiveness, and this was linked to a desire for authors to evidence information within the FH network. Twitter data demonstrated that both organisations and individual users can work together to support a cause and disseminate information. Users will share organisational information and respond to calls for information; organisations will respond to queries and concerns from the FH community. Medical professionals and organisations may need to work further with the social media community to ensure information and advice posted continues to help support the management of those with particular health concerns such as food hypersensitivity. Supportive bodies must engage with social media, support moderation of content, and signpost patients to appropriate accounts and groups. It is better that those supporting FH individuals (or individuals with other health concerns) embrace and utilise these platforms than ignore them, and risk them being used to spread erroneous information. Social media is here to stay, and it is therefore important that organisations work to engage with platforms and their associated users, since support provided here may be instrumental in helping people manage their health.

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## APPENDIX A

## Ethical Approval

Study 1 and Study 2<sup>12</sup>**Richard Hamshaw**

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**From:** Michael Proulx <M.J.Proulx@bath.ac.uk>  
**Sent:** 08 May 2015 10:42  
**To:** Richard Hamshaw  
**Subject:** Ethics 15-088

Dear Richard Hamshaw

Reference: 15-088 Information preferences of those with food allergies and food intolerances: learning from social media

The ethics committee have considered your ethics proposal for the study above and have given it full ethical approval.

Best wishes with your research.

Dr Michael J Proulx  
Chair, Psychology Research Ethics Committee

## Study 3

**Richard Hamshaw**

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**From:** Nathalia Gjersoe  
**Sent:** 15 November 2016 11:57  
**To:** Richard Hamshaw  
**Subject:** Ethics 16-275: Information preferences of those with food allergies and food intolerances: learning from social media

Dear Richard Hamshaw,

Reference Number 16-275: Information preferences of those with food allergies and food intolerances: learning from social media

The ethics committee have considered your ethics proposal for the study above and have given it full ethical approval.

Best wishes with your research

Dr Nathalia Gjersoe  
Chair, Psychology Research Ethics Committee

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<sup>12</sup> Study 1 and 2 were initially conceived as a two-part study. Due to different foci and breadth of material these were eventually divided into two papers. The original ethics application approved both aspects of these studies.

**Study 4****Richard Hamshaw**

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**From:** Nathalia Gjersoe <N.Gjersoe@imaps.bath.ac.uk> on behalf of psychology-ethics  
<psychology-ethics@bath.ac.uk>  
**Sent:** 10 February 2017 19:18  
**To:** Richard Hamshaw  
**Subject:** Ethics 17-004 Information preferences of those with food allergies and food  
intolerances: Learning from social media

Dear Richard,

Reference Number 17-004: Information preferences of those with food allergies and food intolerances:  
Learning from social media

The ethics committee have considered your ethics proposal for the study above and have given it full ethical approval.

Best wishes with your research,

Dr Nathalia Gjersoe  
Chair, Psychology Research Ethics Committee

**APPENDIX B****Study 3 Questionnaire****The Information Preferences of those with Food Allergies and Food Intolerances: Learning from Social Media****Information Sheet for Respondents**

Thank you for considering completing this questionnaire. Please read the following information carefully before deciding whether to participate.

**Purpose of the survey**

The Food Standards Agency (FSA) has commissioned this research to help understand the information preferences of those with food allergies and/or intolerances on social media. The current survey aims to explore how important social media is to people with food allergies/intolerances (or those who care for children with allergies/intolerances), and the reasons why people use social media in relation to food allergy/intolerance. We are also interested in finding out how social media users make judgments about the credibility of information they encounter. The results of this research will support the FSA in ensuring that helpful advice, guidance and tools continue to be developed and made available, and so that we have a better understanding of how social media may offer support.

**Who is conducting this study?**

The study is being conducted by researchers at the University of Bath, as part of a PhD project, and is supported by the University of Southampton, FSA, and the Asthma, Allergy and Inflammation Research charity.

**Why have I been asked to take part in the survey?**

You have been asked to take part as somebody who has adverse reactions to certain foods, or cares for a child who does, and who utilises social media. People with food allergies or food intolerances (or caregivers) aged 18 or over will participate in this survey.

Before we start the survey can you please confirm that you do use social media for reasons relating to your own or your child's food allergy or intolerance (e.g., to follow people/accounts that post content relating to food allergy/intolerance, participate in online discussions/forums, or to post your own content about allergy/intolerance)?

- ☐ Yes - I use social media for reasons relating to food allergy or intolerance
- ☐ No - I do NOT use social media for reasons relating to food allergy or intolerance

**What will the survey involve?**

The survey will involve completing a short 15-minute online questionnaire in several short parts. It will ask you about (a) your adverse reactions to food (b) your use of social media (c) your reasons for using social media in relation to food allergy/intolerance, (d) judgements about the kinds of social media information you might encounter relating to food allergy/intolerance, and e) some general information about yourself.

There will also be the opportunity at the end of the survey to enter a prize draw for the chance to win a £50, £30 or £20 M&S voucher!

**Do I have to take part?**

Your participation is entirely voluntary. You do not have to answer anything that you don't want to and you are free to withdraw from the survey at any point without giving any reasons and without there being any negative consequences. We would like to encourage you to take part as your views and experiences are really valuable to us.

**What will happen to the answers I give?**

The answers you provide will be used in the form of figures, presentations and reports, including a report for the FSA, which will be published on their website. An anonymised copy of the survey results will be available in the UK Data Archive.

**Is the information I give confidential?**

It is entirely confidential. Your data will be stored securely by us at the university. We will not pass your details on to anybody. All data will be treated in accordance with the Data Protection Act 1998. No individual will be identifiable from the results. Your answers will be combined with others who take part in the survey.

**What if there is a problem or if I have any questions?**

If you have any questions or concerns regarding this survey, please feel free to contact Richard Hamshaw on [R.J.T.Hamshaw@bath.ac.uk](mailto:R.J.T.Hamshaw@bath.ac.uk). If you would prefer to talk to the principal investigator overseeing this project, please contact Professor Julie Barnett on [J.C.Barnett@bath.ac.uk](mailto:J.C.Barnett@bath.ac.uk).

**Consent**

Please read the statement below and select the box if you would like to take part in the survey. Please choose only one of the following:

- ☐ I have read and fully understand the information above and I understand the reasons for my information being gathered, the type of information requested including details of any adverse reactions to food, what my information will be used for, and who it could be disclosed to, and I am happy to take part in the survey. Please select this option, and select 'continue'.
- ☐ I do not wish to take part in the survey – please close your web browser to exit the survey.

**Demographics**

D1 Which gender identity do you most identify with?

- ☐ Male
- ☐ Female
- ☐ Prefer not to answer
- ☐ Not Listed (please provide details if you wish) \_\_\_\_\_

D2 Which of the following age brackets do you fall into? Please choose only one of the following:

- ☐ 18-24 years
- ☐ 25-34 years
- ☐ 35-44 years
- ☐ 45-54 years
- ☐ 55+ years
- ☐ Prefer not to answer

D3 How would you describe your ethnicity? Please choose only one of the following:

- ☐ African
- ☐ American/Canadian
- ☐ Asian – Bangladesh
- ☐ Asian – Indian
- ☐ Asian – Pakistani
- ☐ Asian - Sri Lankan
- ☐ British Asian
- ☐ Caribbean
- ☐ Chinese
- ☐ Mixed White & Asian
- ☐ Mixed White & Black African
- ☐ Mixed White & Black Caribbean
- ☐ Other Asian Background
- ☐ Other Black Background
- ☐ Other Ethnic Background
- ☐ Other Mixed background
- ☐ Other White background
- ☐ White British
- ☐ White Irish
- ☐ Prefer not to answer
- ☐ Not Listed (please provide details if you wish) \_\_\_\_\_

D4 Are you a resident in the UK?

- ☐ Yes
- ☐ No (please provide details) \_\_\_\_\_

D5 What is your current marital status? Please choose only one of the following:

- ☐ Cohabiting
- ☐ Divorced
- ☐ Married or in a civil partnership
- ☐ Separated
- ☐ Single
- ☐ In a relationship
- ☐ Widowed
- ☐ Prefer not to answer



D6 What is the highest level of education you have completed? Please choose from the drop-down list:

- ☐ primary education
- ☐ secondary education
- ☐ commercial or technical education diploma
- ☐ university degree
- ☐ [prefer not to answer]

D7 Which of the categories best describes your current working status? Please choose only one of the following:

- ☐ Employed - part-time
- ☐ Employed - full-time
- ☐ Self employed with employees
- ☐ Self-employed without employees
- ☐ Unemployed and seeking work
- ☐ Unemployed and not seeking work
- ☐ Retired
- ☐ Student
- ☐ Homemaker
- ☐ On disability allowance
- ☐ Other
- ☐ Not applicable
- ☐ Prefer not to answer

F1 We are interested in knowing the foods that you (or your child) have reactions to. Firstly, are you completing this survey as an individual who has a food allergy/intolerance, or as a parent who cares for a child with an allergy/intolerance?

- ☐ An individual with a food allergy/intolerance
- ☐ A parent or caregiver of a child with food allergy/intolerance

### Questions for FH Parents

F2P To which of the following foods does your child experience an adverse reaction: Please select at least one answer, and all that apply:

- ☐ Peanuts
- ☐ Other nuts such as brazil nuts, hazelnuts, walnuts and pecans
- ☐ Cow's milk, butter, cheese or other products made with cow's milk
- ☐ Cereals containing gluten - wheat, rye, barley or oats
- ☐ Eggs
- ☐ Fish
- ☐ Crustaceans (e.g., prawns, lobster, crabs and crayfish)
- ☐ Molluscs (e.g., clams, mussels, whelks, oysters, snails and squid)
- ☐ Soya
- ☐ Celery
- ☐ Mustard
- ☐ Lupin
- ☐ Sesame
- ☐ Sulphur dioxide
- ☐ Others(s) (please specify) \_\_\_\_\_

R1P In this section, we are looking to gain an insight into your child's reaction to food. Please answer the following questions to provide a little more detail on the nature of your child's negative reactions to food, past experiences of the reactions, and how they are managed. How would you describe your child's problem with food? Please choose all that apply:

- ☐ Food Allergy
- ☐ Food Intolerance
- ☐ Coeliac Disease
- ☐ Non-coeliac gluten sensitivity
- ☐ Other (please specify below) \_\_\_\_\_
- ☐ Gluten intolerance
- ☐ Lactose intolerance
- ☐ Cow's milk intolerance
- ☐ Irritable Bowel Syndrome
- ☐ Food Protein-Induced Enterocolitis Syndrome (FPIES)

R2P When your child has an adverse reaction to food which of the following symptoms do they experience? Please select at least one answer, and please choose all that apply:

- ☐ 'Stinging nettle' rash, urticaria, hives
- ☐ Itching or swelling of the lips, tongue or mouth
- ☐ Asthma, wheezing
- ☐ Facial swelling
- ☐ Breathing difficulties
- ☐ Anaphylactic shock, collapse
- ☐ Vomiting
- ☐ Diarrhoea
- ☐ Sneezing
- ☐ Other (please specify below) \_\_\_\_\_
- ☐ Catarrh
- ☐ Hyperactivity
- ☐ Tiredness
- ☐ Stomach cramps
- ☐ Other digestive problems (e.g., bloating, constipation)
- ☐ Eczema flare
- ☐ Migraines/headaches
- ☐ Aching joints/muscles
- ☐ Behavioural/mood changes

R3P Generally, how soon does the reaction start after your child eats the food? (Please select the option that best applies) Please choose only one of the following:

- ☐ Immediately
- ☐ Within 1 hour, but not immediately
- ☐ 1 to 24 hours later
- ☐ After 24 hours

R4P When did your child last have a reaction after consumption of this food? Please choose only one of the following:

- ☐ Less than 6 months ago
- ☐ Between 6 months and a year ago
- ☐ Between 1 and 3 years ago
- ☐ Between 3 and 5 years ago
- ☐ Over 5 years ago

R5P When did your child have their most severe reaction after consumption of this food?

Please choose only one of the following:

- ☐ Less than 6 months ago
- ☐ Between 6 months and a year ago
- ☐ Between 1 and 3 years ago
- ☐ Between 3 and 5 years ago
- ☐ Over 5 years ago

R6P How have you arrived at a diagnosis for your child's condition? Please choose only one of the following:

- ☐ My child was formally diagnosed by an NHS or private medical practitioner (e.g., GP, dietician, allergy specialist in a hospital etc.)
- ☐ My child was diagnosed by an alternative or complementary therapist (e.g. homeopath, reflexologist, online or walk-in allergy testing service)
- ☐ I have diagnosed my child's condition based on the foods which cause them problems
- ☐ Other (please give details) \_\_\_\_\_

R7P How old was your child when this diagnosis was reached? If you are uncertain please provide your best estimate.

\_\_\_\_\_

R8P How old was your child when they first started to have adverse reactions to food? If you are uncertain please provide your best estimate.

\_\_\_\_\_

R9P How old was your child when they first started avoiding the food(s) to which they have an adverse reaction? If you are uncertain please provide your best estimate.

\_\_\_\_\_

R10P How often does your child 'take a chance' and consume foods that they know might cause them to have an adverse reaction? (This does not include accidental consumption of foods that they thought were completely safe for them to eat)

- ☐ Never - they strictly avoid these foods
- ☐ Occasionally - Once or twice a year
- ☐ Sometimes - Once a month
- ☐ Often - Once a week
- ☐ Very often - Every few days

**Questions for FH Adults**

F2A To which of the following foods do you experience an adverse reaction: Please select at least one answer, and all that apply:

- ☐ Peanuts
- ☐ Other nuts such as brazil nuts, hazelnuts, walnuts and pecans
- ☐ Cow's milk, butter, cheese or other products made with cow's milk
- ☐ Cereals containing gluten - wheat, rye, barley or oats
- ☐ Eggs
- ☐ Fish
- ☐ Crustaceans (e.g., prawns, lobster, crabs and crayfish)
- ☐ Molluscs (e.g., clams, mussels, whelks, oysters, snails and squid)
- ☐ Soya
- ☐ Celery
- ☐ Mustard
- ☐ Lupin
- ☐ Sesame
- ☐ Sulphur dioxide
- ☐ Other(s) (please specify) \_\_\_\_\_

R1A In this section, we are looking to gain an insight into your reaction to food. Please answer the following questions to provide a little more detail on the nature of your negative reactions to food, past experiences of the reactions, and how they are managed.

How would you describe your problem with food? Please choose all that apply:

- ☐ Food Allergy
- ☐ Food Intolerance
- ☐ Coeliac Disease
- ☐ Non-coeliac gluten sensitivity
- ☐ Other (please specify below) \_\_\_\_\_
- ☐ Gluten intolerance
- ☐ Lactose intolerance
- ☐ Cow's milk intolerance
- ☐ Irritable Bowel Syndrome
- ☐ Food Protein-Induced Enterocolitis Syndrome (FPIES)

R2A When you have an adverse reaction to food which of the following symptoms do you experience? Please select at least one answer, and please choose all that apply:

- ☐ 'Stinging nettle' rash, urticaria, hives
- ☐ Itching or swelling of the lips, tongue or mouth
- ☐ Asthma, wheezing
- ☐ Facial swelling
- ☐ Breathing difficulties
- ☐ Anaphylactic shock, collapse
- ☐ Vomiting
- ☐ Diarrhoea
- ☐ Sneezing
- ☐ Other (please specify below) \_\_\_\_\_
- ☐ Catarrh
- ☐ Hyperactivity
- ☐ Tiredness
- ☐ Stomach cramps
- ☐ Other digestive problems (e.g., bloating, constipation)
- ☐ Eczema flare
- ☐ Migraines/headaches
- ☐ Aching joints/muscles
- ☐ Behavioural/mood changes

R3A Generally, how soon does the reaction start after you eat the food? (Please select the option that best applies). Please choose only one of the following:

- ☐ Immediately
- ☐ Within 1 hour, but not immediately
- ☐ 1 to 24 hours later
- ☐ After 24 hours

R4A When did you last have a reaction after consumption of this food? Please choose only one of the following:

- ☐ Less than 6 months ago
- ☐ Between 6 months and a year ago
- ☐ Between 1 and 3 years ago
- ☐ Between 3 and 5 years ago
- ☐ Over 5 years ago

R5A When did you have your most severe reaction after consumption of this food?

Please choose only one of the following:

- ☐ Less than 6 months ago
- ☐ Between 6 months and a year ago
- ☐ Between 1 and 3 years ago
- ☐ Between 3 and 5 years ago
- ☐ Over 5 years ago

R6A How have you arrived at a diagnosis for your condition? Please choose only one of the following:

- ☐ I was formally diagnosed by an NHS or private medical practitioner (e.g., GP, dietician, allergy specialist in a hospital etc.)
- ☐ I have been diagnosed by an alternative or complementary therapist (e.g. homeopath, reflexologist, online or walk-in allergy testing service)
- ☐ I have diagnosed myself based on the foods which cause me problems
- ☐ Other (please give details) \_\_\_\_\_

R7A How old were you when this diagnosis was reached? If you are uncertain please provide your best estimate.

---

R8A How old were you when you first started to have adverse reactions to food? If you are uncertain please provide your best estimate.

---

R9A How old were you when you first started avoiding the food(s) to which you have an adverse reaction? If you are uncertain please provide your best estimate.

---

R10A How often do you 'take a chance' and consume foods that you know might cause you to have an adverse reaction? (This does not include accidental consumption of foods that you thought were completely safe for you to eat)

- ☐ Never - I strictly avoid these foods
- ☐ Occasionally - Once or twice a year
- ☐ Sometimes - Once a month
- ☐ Often - Once a week
- ☐ Very often - Every few days

### Questions about Social Media

SM1 In this section we are interested in gaining insight into your use of social media. Firstly, please let us know which social media platforms you use in general (e.g., for any purpose). Please tick all that apply.

- ☐ Facebook
- ☐ Twitter
- ☐ Instagram
- ☐ Pinterest
- ☐ Snapchat
- ☐ Other (please say which below) \_\_\_\_\_
- ☐ YouTube
- ☐ Tripadvisor
- ☐ Tumblr
- ☐ Support forums (e.g., food allergy/intolerance charity or organisation forums)
- ☐ Comments forums (e.g., comments platforms on news websites, chat rooms, mumsnet)

SM2 We're interested in learning a bit more about how you use the forms of social media you have identified, and how important they are to you. Please select how much you agree or disagree with each statement below about your social media use. Please remember that the statements are referring to your use of social media as a whole, not just specific platforms.

	strongly disagree	disagree	neither agree nor disagree	agree	strongly agree
Using social media is part of my everyday activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am proud to tell people I'm on social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using social media has become part of my daily routine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel out of touch when I haven't logged onto social media for a while	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I am part of the social media community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If social media platforms were not available, I would really miss them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SM2.1 In the past week roughly how much time EACH DAY have you spent actively using social media?

- ☐ less than 1 hour
- ☐ approximately 1 hour
- ☐ approximately 2 hours
- ☐ approximately 3 hours
- ☐ approximately 4 hours
- ☐ more than 4 hours

SM3 Now could you please let us know which social media platforms you use, or have ever used, specifically in relation to food allergy/intolerance? Please tick all that apply.

- ☐ Facebook
- ☐ Twitter
- ☐ Instagram
- ☐ Pinterest
- ☐ Snapchat
- ☐ Other (please say which below) \_\_\_\_\_
- ☐ YouTube
- ☐ Tripadvisor
- ☐ Tumblr
- ☐ Support forums (e.g., food allergy/intolerance charity or organisation forums)
- ☐ Comments forums (e.g., comments platforms on news websites, chat rooms)





**Condition 1**

For this section of the survey, please take a moment to look at the following examples of Twitter posts that talk about eating out with food allergies/intolerances (below).



The Food Doctor @thefooddoc

Food allergies & intolerances are life changing. They affect 8% of children & 2% of adults in the UK. New laws will make it easier to get the info you need when eating out.

<https://www.food.gov.uk/news-updates/news/2014>



152



505



Safer Catering 24/7 @SaferCatering247

If you encounter a food business not providing #14allergens information, you should feel you can report it to the local authority to investigate

<http://www.bbc.co.uk/news/uk-england-36360111>



98



251



Food & Health Action @foodhealthaction

Almost 3/4 food allergic reactions happen when people eat out. Even familiar dishes can use different recipes/ingredients, which is why it is vital to ask. <http://www.anaphylaxis.org.uk/2015/07/20/food-allergy-reminder>



101



226



**Condition 2**

For this section of the survey, please take a moment to look at the following examples of Twitter posts that talk about eating out with food allergies/intolerances (below).



The Food Doctor @thefooddoc

Food allergies & intolerances are life changing. They affect 8% of children & 2% of adults in the UK. New laws will make it easier to get the info you need when eating out.

🔄 152 ❤️ 505 ⋮



Safer Catering 24/7 @SaferCatering247

If you encounter a food business not providing [#14allergens](#) information, you should feel you can report it to the local authority to investigate

🔄 98 ❤️ 251 ⋮



Food & Health Action @foodhealthaction

Almost 3/4 food allergic reactions happen when people eat out. Even familiar dishes can use different recipes/ingredients, which is why it is vital to ask.

🔄 101 ❤️ 226 ⋮

**Condition 3**

For this section of the survey, please take a moment to look at the following examples of Twitter posts that talk about eating out with food allergies/intolerances (below).



The Food Doctor @thefooddoc

Food allergies & intolerances are life changing. They affect 8% of children & 2% of adults in the UK. New laws will make it easier to get the info you need when eating out.

<https://www.food.gov.uk/news-updates/news/2014>



Safer Catering 24/7 @SaferCatering247

If you encounter a food business not providing #14allergens information, you should feel you can report it to the local authority to investigate

<http://www.bbc.co.uk/news/uk-england-36360111>



Food & Health Action @foodhealthaction

Almost 3/4 food allergic reactions happen when people eat out. Even familiar dishes can use different recipes/ingredients, which is why it is vital to ask. <http://www.anaphylaxis.org.uk/2015/07/20/food-allergy-reminder>



**Condition 4**

For this section of the survey, please take a moment to look at the following examples of Twitter posts that talk about eating out with food allergies/intolerances (below).



The Food Doctor @thefooddoc

Food allergies & intolerances are life changing. They affect 8% of children & 2% of adults in the UK. New laws will make it easier to get the info you need when eating out.



Safer Catering 24/7 @SaferCatering247

If you encounter a food business not providing [#14allergens](#) information, you should feel you can report it to the local authority to investigate



Food & Health Action @foodhealthaction

Almost 3/4 food allergic reactions happen when people eat out. Even familiar dishes can use different recipes/ingredients, which is why it is vital to ask.



We would like to ask you a few questions relating to the Twitter posts you were just shown.

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Very
- ☐ Extremely

- ☐ Never
- ☐ Rarely
- ☐ Occasionally
- ☐ A moderate amount
- ☐ A great deal

How well do the following adjectives describe these Twitter posts from 1 - describes very poorly, to 7 - describes very well?

	1	2	3	4	5	6	7
accurate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
authentic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
believable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Based on your perception of the Twitter posts, please provide an evaluation in terms of the following features below. Select a checkbox in terms of where you feel the posts you have just seen lie on each scale.

[illegible]

[illegible][illegible]

### Experts Study Follow-up Questions

We would be interested in knowing if there are any social media users or accounts who post about food allergy or food intolerance that you consider expert, trustworthy, or credible. Please give any examples in the space provided (e.g., name/username, group, organisation):

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What is it about these users that leads you to view them as expert, trustworthy or credible? Please give any further thoughts below:

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The University of Bath will be conducting follow-up research around the meanings associated with expertise on social media in relation to allergy and intolerance. Would you be willing for a member of our research team to contact you to discuss the examples you have just mentioned? This will involve answering some questions via short email interviews.

- ☐ Yes - I am happy for you to contact me about potentially taking part in this follow-up research
- ☐ No - I would not like to be contacted about this follow-up research

Thank you. We really appreciate your support for our research! Please can you provide an email address for us to get in touch:

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Finally, if there is any additional information or comments you would like to make in relation to social media use and food allergy/intolerance please do so in the space provided below.

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## Respondent Debrief Sheet

Thank you for taking the time to complete this online survey. Your responses are very much appreciated.

We are interested in exploring the way people who have food allergies/intolerances use social media. We are also interested in understanding what motivates people to use social media platforms, for example to seek information, make social connections, or just for entertainment. Furthermore, we are also keen to understand how some of the aspects of social media posts can affect how credible we feel the information is, such as the number of shares or the use of links to other online sources.

If you have any further questions about this survey, please contact Richard Hamshaw at [R.J.T.Hamshaw@bath.ac.uk](mailto:R.J.T.Hamshaw@bath.ac.uk). If you would like any further information or support relating to food allergy or food intolerance you may wish to take a look at the following support organisations:

<https://www.food.gov.uk/science/allergy-intolerance>

<https://www.allergyuk.org/>

<http://www.anaphylaxis.org.uk/>

<http://allergyaction.org/>

<https://www.coeliac.org.uk/home/>



Prize As mentioned at the start of the survey, there is a prize draw for the chance to win a £50, £30 or £20 M&S voucher. If you would like to be entered into the prize draw please provide an email address that we can contact you by if you are lucky enough to be a winner. Please note this email address will not be used for any other purposes other than contacting you if you win a prize. Good luck!





**APPENDIX C****Research Materials for Study 4****1. Email Invitations*****FH Participants***

Dear \_\_\_\_\_,

I am writing in the hope that you might be willing to take part in a small piece of research I am conducting as part of my PhD at the University of Bath, funded by the Food Standards Agency and the Asthma, Allergy and Inflammation Research (AAIR) charity.

This research project is exploring perceptions of expertise on social media, and I am contacting you because you were involved in a survey for my PhD research recently, and you identified one or more potential social media experts in food allergy or intolerance. My records show that you were happy for us to contact you about this follow-up study.

I plan to conduct this study solely via email in the form of email interviews. The study will simply involve respondents answering some questions and providing their views around the topic of how people come to be thought about as experts on social media, and is likely to take the form of 3-4 email exchanges. I will send respondents a few questions to answer via email, and then, on receipt of their replies, ask some follow up questions. It is unlikely that these email interviews will take up too much of your time – approximately 30 minutes to an hour overall, but spread across a few shorter email exchanges. You can reply to these questions at a time that suits you – time taken will vary depending on how much you would like to say in your response.

As a sign of my appreciation for your participation, I can offer £20 worth of Amazon vouchers following the completion of the email interview (or M&S gift card as an alternative if you would prefer).

If you think you might like to participate in an email interview, please let me know by replying to this message and I will send further information.

Thank you for taking the time to read this request. I hope you are able to help.

Many thanks,

Richard



Richard J. T. Hamshaw, PhD Researcher

Department of Psychology, University of Bath  
10 West - 3.09, Bath BA2 7AY, United Kingdom |  
Telephone: 01225 384573 | Email:  
R.J.T.Hamshaw@bath.ac.uk

**Perceived Experts**

Dear \_\_\_\_\_,

I am writing in the hope that you might be willing to take part in a small piece of research I am conducting as part of my PhD at the University of Bath, funded by the Food Standards Agency and the Asthma, Allergy and Inflammation Research (AAIR) charity.

This research project is exploring perceptions of expertise on social media, and the reason I am contacting you is that social media users involved in a previous piece of my PhD research have identified yourself as an expert in food allergy or intolerance online.

I plan to conduct this study solely via email in the form of email interviews. The study will simply involve respondents answering some questions and providing their views around the topic of how people come to be thought about as experts on social media, and is likely to take the form of 3-4 email exchanges. I will send respondents a few questions to answer via email, and then, on receipt of their replies, ask some follow up questions. It is unlikely that these email interviews will take up too much of your time – approximately 30 minutes to an hour overall, but spread across a few shorter email exchanges. You can reply to these questions at a time that suits you – time taken will vary depending on how much you would like to say in your response.

As a sign of my appreciation for your participation, I can offer £20 worth of Amazon vouchers following the completion of the email interview (or M&S gift card as an alternative if you would prefer).

If you think you might like to participate in an email interview, please let me know by replying to this message and I will send further information.

Thank you for taking the time to read this request. I hope you are able to help.

Many thanks,

Richard



Richard J. T. Hamshaw, PhD Researcher

Department of Psychology, University of Bath  
10 West - 3.09, Bath BA2 7AY, United Kingdom |  
Telephone: 01225 384573 | Email:  
R.J.T.Hamshaw@bath.ac.uk

## 2. Information and Consent Forms

### ***FH Participants***



Thank you for considering taking part in this study exploring the meanings associated with expertise on social media in relation to food allergy and intolerance. Before agreeing to take part, please read the following information below about the research.

#### **Purpose of the study**

The Food Standards Agency (FSA) has commissioned this research to help understand the information preferences of those with food allergies and/or intolerances on social media. The current study aims to explore how people come to think about themselves and others as experts on social media and how they decide what information to provide or to take notice of relating to food allergy or intolerance on social media. The results of this research will support the FSA in ensuring that helpful advice, guidance and tools continue to be developed and made available, and so that we have a better understanding of how best social media users may best offer support to others with food allergy or intolerance.

#### **Who is conducting this study?**

The study is being conducted by researchers at the University of Bath, as part of a PhD project, and is supported by the University of Southampton, FSA, and the Asthma, Allergy and Inflammation Research (AAIR) charity.

#### **Why have I been asked to take part?**

You have been contacted because you took part in a recent survey about food allergy/intolerance and social media conducted by the research team at Bath, and our records show that you were happy for us to contact about this follow-up study. More specifically you have been asked to take part because you identified one or more potential social media experts in food allergy or intolerance.

#### **What will the study involve?**

The study will be conducted solely via email in the form of email interviews/Q&As. The study will simply involve you answering some questions around the topic of social media expertise, and is likely to take the form of 3-4 email exchanges. You will be sent a few questions to answer via email, and then some follow-up questions. It is unlikely that these email interviews will take up too much of your time – approximately 30 minutes to an hour overall, but spread across a few shorter email exchanges. You can reply to these questions at a time that suits you – and time taken will vary depending on how much you would like to say in your response. Respondents will also be entitled to a £20 Amazon voucher on completion of the email interviews.

**Do I have to take part?**

Your participation is entirely voluntary. You do not have to answer anything that you don't want to and you are free to withdraw from the survey at any point without giving any reasons and without there being any negative consequences. We would like to encourage you to take part as your views and experiences are really valuable to us.

**What will happen to the responses I give?**

The answers you provide will be used in research papers produced by the PhD researcher conducting this study. This research paper will also be submitted to the FSA and held on file. Extracts/quotes from the interviews will be used, but any reference to names, associations or organisations will be anonymised so that data cannot be traced back to individual respondents.

**Is the information I give confidential?**

It is entirely confidential. Your data will be stored securely by us at the university. We will not pass your details on to anybody. All data will be treated in accordance with the Data Protection Act 1998. No individual will be identifiable from the results. Your answers will be combined with others who take part in the interviews.

**What if there is a problem or if I have any questions?**

If you have any questions or concerns regarding this survey, please feel free to contact Richard Hamshaw at *R.J.T.Hamshaw@bath.ac.uk*. If you would prefer to talk to the principal investigator overseeing this project, please contact Professor Julie Barnett at *J.C.Barnett@bath.ac.uk*

**Your Consent**

Please read the statement below and type an 'X' in the square-brackets to confirm you would like to take part in the survey.

I have read and fully understand the information above and I understand the reasons for my information being gathered, the type of information requested and who it could be disclosed to, and I am happy to take part in the survey. [ ]

Please confirm your consent by typing your full name and the date below and sending as a reply to this message:

**Full name:**

**Date:**

**Perceived Experts**

Thank you for considering taking part in this study exploring the meanings associated with expertise on social media in relation to food allergy and intolerance. Before agreeing to take part, please read the following information below about the research.

**Purpose of the study**

The Food Standards Agency (FSA) has commissioned this research to help understand the information preferences of those with food allergies and/or intolerances on social media. The current study aims to explore how people come to think about themselves and others as experts on social media and how they decide what information to provide or to take notice of relating to food allergy or intolerance on social media. The results of this research will support the FSA in ensuring that helpful advice, guidance and tools continue to be developed and made available, and so that we have a better understanding of how social media may offer support.

**Who is conducting this study?**

The study is being conducted by researchers at the University of Bath, as part of a PhD project, and is supported by the University of Southampton, FSA, and the Asthma, Allergy and Inflammation Research (AAIR) charity.

**Why have I been asked to take part?**

You have been asked to take part because respondents in a recent survey about food allergy/intolerance and social media use identified yourself as a potential expert of social media around the topic of food allergy or intolerance. We are interested in learning about the meanings you associate with expertise on social media.

**What will the study involve?**

The study will be conducted solely via email in the form of email interviews/Q&As. The study will simply involve you answering some questions around the topic of social media expertise, and is likely to take the form of 3-4 email exchanges. You will be sent a few questions to answer via email, and then some follow-up questions. It is unlikely that these email interviews will take up too much of your time – approximately 30 minutes to an hour overall, but spread across a few shorter email exchanges. You can reply to these questions at a time that suits you – and time taken will vary depending on how much you would like to say in your response. Respondents will also be entitled to a £20 Amazon voucher on completion of the email interviews.

**Do I have to take part?**

Your participation is entirely voluntary. You do not have to answer anything that you don't want to and you are free to withdraw from the survey at any point without giving any reasons and without there being any negative consequences. We would like to encourage you to take part as your views and experiences are really valuable to us.

**What will happen to the responses I give?**

The answers you provide will be used in research papers produced by the PhD researcher conducting this study. This research paper will also be submitted to the FSA and held on file. Extracts/quotes from the interviews will be used, but any reference to names, associations or organisations will be anonymised so that data cannot be traced back to individual respondents.

**Is the information I give confidential?**

It is entirely confidential. Your data will be stored securely by us at the university. We will not pass your details on to anybody. All data will be treated in accordance with the Data Protection Act 1998. No individual will be identifiable from the results. Your answers will be combined with others who take part in the interviews.

**What if there is a problem or if I have any questions?**

If you have any questions or concerns regarding this survey, please feel free to contact Richard Hamshaw at *R.J.T.Hamshaw@bath.ac.uk*. If you would prefer to talk to the principal investigator overseeing this project, please contact Professor Julie Barnett at *J.C.Barnett@bath.ac.uk*

**Your Consent**

Please read the statement below and type an 'X' in the square-brackets to confirm you would like to take part in the survey.

I have read and fully understand the information above and I understand the reasons for my information being gathered, the type of information requested and who it could be disclosed to, and I am happy to take part in the survey. [ ]

Please confirm your consent by typing your full name and the date below and sending as a reply to this message:

**Full name:**

**Date:**

### 3. Email Interview Schedules

#### ***FH Participants***

##### **Phase 1 Questions**

- Q1** Can you tell me a bit about the way you typically use social media for things that relate to your food allergy or intolerance?

Perhaps you have some specific examples of things you tend to do, or accounts or people you tend to follow or share information with?

You might like to attach image examples (e.g., using the Windows snipping tool) if it helps.

*(Please be reassured that information about others will be kept anonymous)*

- Q2** What do you think is it about a user or account relating to food allergy or intolerance on social media that leads you to consider them as an expert?

Please say as much as you can about this – and please do give examples if you can. Of course, there are no right or wrong answers to this – we are genuinely interested in your views about expertise.

- Q3** You mentioned \_\_\_\_\_ as a potential expert on social media in relation to food allergy during our online survey study. Can you talk me through your reasoning behind giving \_\_\_\_\_ as an example? What do you think it is that this person does that leads you to consider them as a potential expert?

##### **Example Phase 2 Questions**

- Q4** Last time we spoke about some of the reasons why you considered \_\_\_\_\_ an expert on social media around food allergy/intolerance.

I would be interested to hear how you think \_\_\_\_\_ might have come to be seen as an expert by others

- Q5** Do you feel that how we judge the expertise of others on social media is different to how we might judge expertise in other settings (for example, offline, or elsewhere on the internet)?

Please could you give some detail about your thoughts?

Perhaps you could relate your thoughts to the area of food allergy/intolerance?

- Q6** Finally, it would be really interesting to hear some of the ways you might consider something or someone on social media as non-expert or untrustworthy?

Do you notice specific things, or do you have any examples?



***Perceived Experts*****Phase 1 Questions**

- Q1** Can you tell me a bit about the way you typically use social media for things that relate to food allergy or intolerance?
- Q2** What sorts of things do you think are important when others judge the expertise of another social media user?

How about specifically in relation to food allergy and intolerance?

Are there perhaps any social media users that you feel are expert in this area?

Please say as much as you can about this – and please do give examples if you can. Of course there are no right or wrong answers to this – we are interested in your views about expertise.

- Q3** As you know, some food allergic/intolerant social media users in a survey we recently conducted identified you as an expert in food allergy/intolerance on social media – what do you think people's reasoning might be for this judgement?

Were you surprised to hear you were mentioned by others?

**Example Phase 2 Questions**

- Q4** Can you talk me through the sorts of things you consider before posting something on social media around the topic of food allergy/intolerance? For example, do you consider where your information has come from, who might read it, whether you should use things like hashtags or mention other social media users etc.?

Can you tell me about a typical exchange during your food allergy/intolerance social media activities?

- Q5** Do you think social media has changed the way you think about yourself, for example as someone with expertise in this area?

- Q6** Do you feel that how we judge the expertise of others on social media is different to how we might judge expertise in other settings (for example, offline, or elsewhere on the internet)?

Please could you give some detail about your thoughts?

Perhaps you could relate your thoughts to the area of food allergy/intolerance?

- Q7** Finally, it would be really interesting to hear some of the ways you might consider something or someone on social media as non-expert or untrustworthy?

Do you notice specific things, or do you have any example?

#### 4. Email Debrief Form



Thank you for taking the time to complete this online interview. Your responses are very much appreciated. As mentioned when you agreed to take part in this research, we are interested in exploring how meanings are constructed around expertise on social media in relation to food allergy and intolerance. We have asked both social media users who have a food allergy or intolerance (or care for someone who does), and social media users identified as potential experts in this area to share their thoughts with us. Hopefully our findings will have benefits for supporting people with food allergies or intolerances; helping supportive agencies and organisations in providing the best possible information, care and provision – and offering advice on finding credible and trustworthy health information online.

If you have any further questions about this survey, please contact Richard Hamshaw at [R.J.T.Hamshaw@bath.ac.uk](mailto:R.J.T.Hamshaw@bath.ac.uk). If you would like any further information or support relating to food allergy or food intolerance you may wish to take a look at the following support organisations:

<https://www.food.gov.uk/science/allergy-intolerance>

<https://www.allergyuk.org/>

<http://www.anaphylaxis.org.uk/>

<http://allergyaction.org/>

<https://www.coeliac.org.uk/home/>





“

*Monica: Phoebe, do you have a “plan”?*

*Phoebe: I don’t even have a “pla”*

”

## **Friends**

Season 1 (Episode 4)